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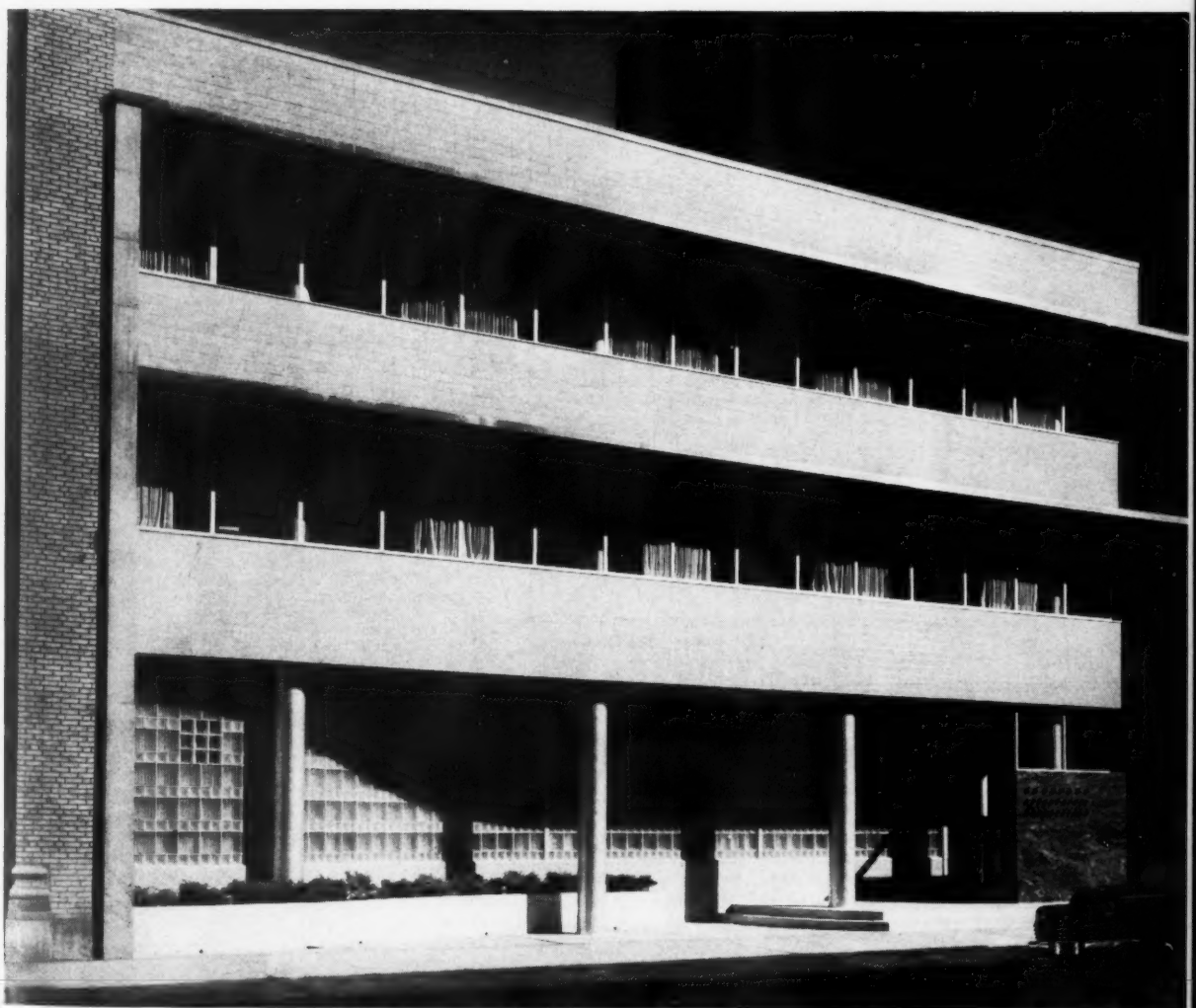

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Cover Picture: Headquarters Building of the American Osteopathic Association, where Office of Education is located.

OSTEOPATHIC EDUCATION

LAWRENCE W. MILLS
Director, Office of Education
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Osteopathic college enrollment 1956-57

The number of applications for admission to osteopathic colleges for the academic year starting in the fall of 1956 was slightly higher than the number of applications made for the previous year. In spite of this fact, two of the osteopathic colleges, namely the Kansas City College of Osteopathy and Surgery and the Kirksville College of Osteopathy and Surgery, experienced an unprecedented number of last-minute cancellations of applicants who had been accepted and who had paid the required deposits on their tuition. In analyzing these cancellations, it was found that the majority was caused by lack of finances. In these two colleges, 35 of the applicants who found it necessary to cancel their acceptances requested to be considered for admission in the fall of 1957. Consequently, the first-year classes in the fall of 1956 show a decrease of 25 students over the entering classes in 1955.

TABLE I—ENROLLMENT 1956-57

	First-Year Students	Second-Year Students	Third-Year Students	Fourth-Year Students	Total
CCO	68	52	49	63	232
COPS	93	90	87	85	355
DMS	64	55	50	49	218
KC	92	105	84	89	370
KCOS	84	93	78	61	316
PCO	94	86	100	95	375
Total	495	481	448	442	1,866

The abbreviations used for the osteopathic colleges in all the tables in this Supplement are as follows:
CCO—Chicago College of Osteopathy
COPS—College of Osteopathic Physicians and Surgeons
DMS—Des Moines Still College of Osteopathy and Surgery
KC—Kansas City College of Osteopathy and Surgery
KCOS—Kirksville College of Osteopathy and Surgery
PCO—Philadelphia College of Osteopathy

Graduating classes

TABLE II—GRADUATING CLASSES

College	Number of Graduates 1956	Estimated Number of Graduates 1957
CCO	54	64
COPS	77	85
DMS	59	50
KC	104	89
KCOS	73	61
PCO	97	95
Total	464	444

In the spring of 1956 the six osteopathic colleges graduated classes of 464 students, which represents the largest number of graduates in the last quarter of a century. Owing to an unusually high mortality rate of the classes which entered in 1953, the graduating classes in 1957 will show a drop of approximately 20 students. The graduating classes in 1958 will show a slight increase, and by 1959 it is contemplated that the graduating classes will return to the peak of approximately 460.

Enrollment since 1947

TABLE III—ENROLLMENT SINCE 1947

	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
CCO	154	188	215	242	237	240	221	223	235	232
COPS	240	279	336	356	359	348	344	336	346	355
DMS	171	235	264	292	278	254	246	227	226	218
KC	177	223	248	222	318	342	365	366	378	370
KCOS	250	315	386	410	374	368	343	331	319	316
PCO	225	283	329	354	362	365	378	384	379	375
Total	1217	1523	1778	1876	1928	1917	1897	1867	1883	1866

Table III shows the undergraduate enrollment in the six osteopathic colleges since 1947. The steady flow of veterans of World War II, under the G.I. Bill of Rights (Public Law 346), started in 1946 and reached its peak in 1951 and 1952, when 85 per cent of the osteopathic undergraduate enrollment was made up of ex-service men and women. It will be noted that the undergraduate enrollment in 1951 of 1,928 students represents the largest number of osteopathic students in the past decade. This is due to the fact that the 1951 enrollment included two graduating classes in two osteopathic colleges. The year 1951 marked the end of the accelerated program which existed during World War II.

Women students in osteopathic colleges

Table IV shows the distribution of women students in the various osteopathic colleges by classes. Although the actual number of women enrolled in osteopathic colleges remains the same as in 1955-56, it is noted that 14 women were admitted for the classes starting in the fall of 1956. This is the largest number of entering women students in 5 years.

The study and training required for men and women in osteopathic education are the same. Professional careers in osteopathic medicine result in the same remuneration for women as for men. In the osteopathic profession women occupy high offices in professional organizations and serve on faculties of osteopathic colleges and on hospital and clinic staffs.

TABLE IV—NUMBER OF WOMEN IN OSTEOPATHIC COLLEGES, 1956-57

College	First-Year Students	Second-Year Students	Third-Year Students	Fourth-Year Students	Total
CCO	2	1	0	2	5
COPS	2	1	4	3	10
DMS	0	0	1	1	2
KC	4	3	5	0	12
KCOS	4	1	1	0	6
PCO	2	1	2	3	8
Total	14	7	13	9	43

Undoubtedly the professions of nursing and teaching today are attracting many women who may have considered a medical career but failed to pursue it because of the length and cost of training. The comparatively new fields of medical technology, occupational therapy, medical librarianship, medical recorders, and the many other essential occupations in the healing arts, which are necessary on the health team, are attracting young women who are interested in the healing arts field in general.

Actually the admissions committees of osteopathic colleges report that the ratio between acceptances and applications is higher for women than it is for men at present.

Preprofessional training of first-year students

Table V lists the preprofessional colleges by states where first-year students in 1956 received their required training for entrance into osteopathic colleges. The 495 first-year students represent 205 colleges in 39 states and 1 foreign country.

TABLE V—WHERE OSTEOPATHIC FIRST-YEAR STUDENTS RECEIVED PREPROFESSIONAL TRAINING, FALL 1956

STATE AND COLLEGES		CCO	COPS	DMS	KC	KCOS	PCO	TOTAL
ALABAMA								
Howard College					1			1
Tuskegee Institute			1					1
	Total		1		1			2
ARIZONA								0
ARKANSAS								
Harding College					1			1
University of Arkansas						1		1
	Total				1	1		2
CALIFORNIA								
Chapman College			1					1
College of the Sequoias						1		1
Compton College			1					1
East Los Angeles Junior College			1					1
El Camino College			5					5
Fresno State College			2					2
La Sierra College			1		2			3
Long Beach City College			2					2
Long Beach State College			3					3
Los Angeles City College			6					6
Los Angeles State College			9					9
Loyola University			1					1
Mt. San Antonio College			1					1
Occidental College			3					3
Pacific Union College			1					1
San Diego State College			1	1				2
San Francisco State College			1					1
University of California, Berkeley		1	1					2
University of California, Los Angeles			20					20
University of California, Riverside			1					1
University of Redlands			1					1
University of Southern California			9	1	1			11
Whittier College			1					1
	Total	1	72	2	3	1		79
COLORADO								
Colorado College			1					1
University of Colorado					1			1
University of Denver					2			2
	Total		1		3			4
CONNECTICUT								
University of Connecticut							1	1
	Total						1	1
DELAWARE								
University of Delaware							1	1
	Total						1	1
DISTRICT OF COLUMBIA								
Georgetown University					1		1	2
	Total				1		1	2
FLORIDA								
Florida Southern College					1			1
University of Florida				1		1		2
University of Miami		1		1	1	1		4
University of Tampa						1		1
	Total	1		2	2	3		8
GEORGIA								
University of Georgia					1			1
Valdosta State College						1		1
	Total				1	1		2

STATE AND COLLEGES		CCO	COPS	DMS	KC	KCOS	PCO	TOTAL
HAWAII								0
IDAHO								0
ILLINOIS								
Blackburn College						1		1
Eastern Illinois State College						1		1
Knox College						1		1
Loyola University		1						1
Northwestern University		2						2
Roosevelt University		4						4
St. Procopius College		2						2
University of Illinois		2	2					4
	Total	11	2			3		16
INDIANA								
Ball State Teachers College		1						1
Franklin College		1						1
Goshen College					1			1
Indiana University		2						2
Purdue University			1			1		2
St. Joseph's College		1						1
University of Notre Dame				1				1
Valparaiso University		1						1
	Total	6	1	1	1	1		10
IOWA								
Cornell College				1				1
Drake University				1				1
Iowa Wesleyan College						2		2
Loras College		1		1				2
State University of Iowa				6				6
Wartburg College						1		1
	Total	1		9		3		13
KANSAS								
Bethany College					2			2
Kansas State College				1				1
University of Kansas					1			1
	Total			1	1			4
KENTUCKY								
Berea College					1			1
University of Louisville					1			1
Villa Madonna College		1						1
	Total	1			2			3
LOUISIANA								0
MAINE								
University of Maine						2		2
	Total					2		2
MARYLAND								
Johns Hopkins University					1			1
University of Maryland						1		1
	Total				1	1		2
MASSACHUSETTS								
Atlantic Union College					2			2
Boston University							2	2
Springfield College						1		1
Tufts College							1	1
	Total				2	1	3	6

STATE AND COLLEGES		CCO	COPS	DMS	KC	KCOS	PCO	TOTAL
MICHIGAN								
Aquinas College		1						1
Central Michigan College		3						3
Detroit Institute of Technology		2		1				3
Emmanuel Missionary College				1				1
Ferris Institute		2						2
Kalamazoo College		1						1
Michigan State Normal College						1		1
Michigan State University		2	2					4
University of Detroit		3		3	4			10
University of Michigan		3	1	1		3		8
Wayne University		6		12	1	7		26
Western Michigan College		1	1			1		3
	Total	24	4	18	5	12		63
MINNESOTA								
St. Olaf College						1		1
University of Minnesota				1				1
	Total			1		1		2
MISSISSIPPI								
University of Mississippi							1	1
	Total						1	1
MISSOURI								
Northeast Missouri State Teachers College					4	14		18
Rockhurst College					3			3
Tarkio College					1			1
University of Kansas City					7			7
University of Missouri					1			1
Washington University						1		1
	Total				16	15		31
MONTANA								
Montana State University						1		1
	Total					1		1
NEBRASKA								
Union College					1			1
	Total				1			1
NEVADA								0
NEW HAMPSHIRE								
University of New Hampshire		1						1
	Total	1						1
NEW JERSEY								
College of St. Elizabeth							1	1
Princeton University							1	1
Rutgers University			1				1	2
St. Peter's College						1	1	2
Seton Hall University		1			1			2
	Total	1	1		1	1	4	8
NEW MEXICO								
University of New Mexico		1						1
	Total	1						1
NEW YORK								
Alfred University						1		1
Brooklyn College		1		4	3	1		9
City College of New York			1		1		1	3
Colgate University			1			1	1	3
Columbia University		1				1		2
Cornell University							1	1
Hobart College		1						1
Hofstra College							1	1
Ithaca College		1						1
Long Island University		2	1	7	1	1	2	14
New York University					2	3	1	6
Queens College							1	1
Roberts Wesleyan College					1			1
St. Bonaventure University						1		1
St. Francis College				1				1
St. John's University					1	1	1	3
Syracuse University		1				1		2
University of Buffalo					1	1	1	3
University of Rochester					1			1
Yeshiva University					1			1
	Total	7	3	12	12	12	10	56
NORTH CAROLINA								
Catawba College							1	1
East Carolina College						1		1
	Total					1	1	2
NORTH DAKOTA								
University of North Dakota					1			1
	Total				1			1
OHIO								
Bowling Green State University						1	1	2
Central State College							1	1
College of Wooster						1		1
Denison University						1		1
Hiram College							2	2
John Carroll University		1		1				2
Kent State University			1	2				3
Miami University					2			2
Muskingum College						2		2
Oberlin College		1						1
Ohio Northern University					1			1
Ohio State University		1			1	2		4
Ohio University			1					1
University of Cincinnati						1		1
University of Toledo				1	1			2
Western Reserve University			1		2			3
Wittenberg College		1	1					2
Youngstown University				2	1			3
	Total	4	4	6	8	8	4	34
OKLAHOMA								
Cameron State Agricultural College					2			2
Central State College					3			3
Northwestern State College						1		1
Oklahoma A & M College				2				2
Phillips University					1			1
University of Oklahoma					2			2
	Total			2	8	1		11
OREGON								
Lewis and Clark College					2			2
	Total				2			2
PENNSYLVANIA								
Albright College							4	4
Allegheny College							1	1
Duquesne University							1	1
Franklin and Marshall College							2	2
Geneva College				1				1
Gettysburg College							3	3
Immaculata College					1			1
King's College				1			1	2
Lafayette College						1	2	3
La Salle College							6	6
Lehigh University							1	1
Lincoln University							1	1
Lycoming College						1		1
Muhlenberg College							1	1
Pennsylvania Military College							1	1
Pennsylvania State University						1	2	3
Philadelphia College of Pharmacy and Science							9	9
St. Joseph's College							2	2
State Teachers College, West Chester							1	1
Temple University				1	3	1	15	20
University of Pennsylvania				2	1	2	6	11
University of Pittsburgh		1			1		3	5
Ursinus College		1					1	2
Villanova University							2	2
	Total	2		5	6	6	65	84
RHODE ISLAND								
Rhode Island College of Pharmacy and Allied Sciences							1	1
	Total						1	1
SOUTH CAROLINA								
The Citadel						1		1
	Total					1		1
SOUTH DAKOTA								0
TENNESSEE								
Madison College					1			1
Memphis State College						1		1
Tusculum College		1						1
University of Tennessee				1				1
	Total	1		1	1	1		4
TEXAS								
Baylor University					2			2
Lamar State College of Technology						1		1
Pan American College						1		1
St. Mary's University				1				1
Sam Houston State Teachers College						1		1
San Angelo College					1			1
Southwest Texas State College					1			1
Southwestern University						1		1
Texas Wesleyan College			1					1
University of Texas		2	1		3	1		7
Wiley College				1				1
	Total	2	2	2	7	5		18
UTAH								0
VERMONT								0
VIRGINIA								0
WASHINGTON								
Seattle University		1	1					2
State College of Washington			1					1
Walla Walla College					1			1
	Total	1	2		1			4
WEST VIRGINIA								
Davis and Elkins College							2	2
Marshall College						1		1
West Virginia Institute of Technology					1			1
West Virginia University						1		1
West Virginia Wesleyan College				1				1
	Total			1	1	2	2	6
WISCONSIN								
Marquette University			2					2
Milton College				1				1
University of Wisconsin			1					1
	Total		3		1			4
FOREIGN								
University of the Philippines					1			1
	Total				1			1
GRAND TOTALS		68	93	64	92	84	94	495

States leading in number of first-year students

Table VI lists those states which lead in the number of first-year students in osteopathic colleges in 1956.

The preprofessional training of 347 first-year students, or 70 per cent of the six classes, was furnished by colleges in these six states. In these states are 54 per cent of the entire osteopathic profession. In five of the six states are a large number of osteopathic institutions, such as hospitals and clinics, as well as four of the six osteopathic colleges.

Table VII shows the states leading in the number of first-year students in osteopathic colleges in the fall of 1955.

Table VIII lists the number of preprofessional colleges and states represented in the first-year classes of the six osteopathic colleges.

TABLE VI—STATES LEADING IN NUMBER OF FIRST-YEAR STUDENTS, 1956

State	Number of Colleges	Number of First-Year Students
Pennsylvania	24	84
California	23	79
Michigan	12	63
New York	20	56
Ohio	18	34
Missouri	6	31

TABLE VII—STATES LEADING IN NUMBER OF FIRST-YEAR STUDENTS, 1955

State	Number of Colleges	Number of First-Year Students
Pennsylvania	24	86
California	22	85
New York	24	67
Ohio	21	49
Michigan	10	49
Missouri	10	37

TABLE VIII—REPRESENTATION OF PREPROFESSIONAL COLLEGES AND STATES IN FIRST-YEAR CLASSES, 1956

College	First-Year Enrollment	Number of Colleges Represented	Number of States Represented
CCO	68	44	17
COPS	93	41	11
DMS	64	35	16
KC	92	59*	27†
KCOS	84	56	24
PCO	94	47	12

*Including University of the Philippines
†Including the Philippines

Preprofessional colleges training largest number of first-year students

Table IX lists the five preprofessional colleges which trained the largest number of entering students in the fall of 1956. For comparative purposes, Table X lists the five colleges which trained the largest number of first-year students entering in the fall of 1955.

TABLE IX—PREPROFESSIONAL COLLEGES TRAINING LARGEST NUMBER OF FIRST-YEAR STUDENTS, 1956

College	State	Number of First-Year Students
Wayne University	Michigan	26
University of California, Los Angeles	California	20
Temple University	Pennsylvania	20
Northeast Missouri State Teachers College	Missouri	18
Long Island University	New York	14

TABLE X—PREPROFESSIONAL COLLEGES TRAINING LARGEST NUMBER OF FIRST-YEAR STUDENTS, 1955

College	State	Number of First-Year Students
University of California, Los Angeles	California	28
Temple University	Pennsylvania	22
Northeast Missouri State Teachers College	Missouri	21
Wayne University	Michigan	19
University of Southern California	California	15

Nearly 20 per cent of the entering students in the six osteopathic colleges receive their training in the five colleges and universities listed in the above tables. Northeast Missouri State Teachers College, in Kirksville, Missouri, established an official preosteopathic college course 8 years ago, which makes it possible for students, after completing 3 years of such a course, to receive their baccalaureate degrees, following completion of their professional academic work in osteopathic colleges. Students from many parts of the country have entered this college because of the preosteopathic course. The excellent relationship which exists between the faculty of the Kirksville College of Osteopathy and Surgery and the faculty of the Northeast Missouri State Teachers College undoubtedly has resulted in the large number of students from the college entering osteopathic education annually.

Geographic distribution of osteopathic students, 1956

Table XI shows the geographic distribution of the entire osteopathic undergraduate enrollment according to their residence and the osteopathic college which they are attending in relation to the total number of osteopathic physicians located in the various states.

Length of preprofessional training

Tables XII and XIII show the length of preprofessional training which the matriculants into osteopathic colleges had completed upon entrance in 1955 and 1956.

All osteopathic colleges require a minimum of 3 years of preprofessional college training.

TABLE XI—GEOGRAPHIC DISTRIBUTION OF OSTEOPATHIC STUDENTS, 1956

State or Country	CCO	COPS	DMS	KC	KCOS	PCO	Total Students	Total D.O.'s
Alabama	1						1	4
Arizona			1	2			3	99
Arkansas				1	1		2	25
California	3	319	4	28	3		357	2,167
Colorado	1	1		5	1		8	211
Connecticut		2		3	1	5	11	70
Delaware			2			2	4	24
Dist. of Columbia				2	1	1	4	17
Florida	3		4	9	8	1	25	342
Georgia				3	2	1	6	76
Hawaii	1	1	1		1		4	11
Idaho							0	46
Illinois	35		1	8	12		56	390
Indiana	13			4	9		26	163
Iowa	1		27	2	9		39	478
Kansas	1			10	2		13	213
Kentucky	1			4	2		7	41
Louisiana							0	17
Maine	2				4	2	8	218
Maryland	1			3		2	6	23
Massachusetts	1	1	1	3	5	4	15	255
Michigan	71	5	70	27	43		216	1,269
Minnesota	2		2		6		10	87
Mississippi		1		1			2	7
Missouri	2		2	47	34		85	1,176
Montana				2	2		4	50
Nebraska			1	2	2		5	68
Nevada							0	25
New Hampshire			1				1	24
New Jersey	6	2	4	29	19	54	114	377
New Mexico	1			1	2		4	106
New York	33	5	24	40	42	47	191	477
North Carolina	1				1		2	37
North Dakota				2	1		3	15
Ohio	24	5	26	26	33	5	119	743
Oklahoma			3	18	5		26	355
Oregon		1	1	4	2		8	139
Pennsylvania	9	3	21	31	31	242	337	1,208
Rhode Island	1	1	1	1	1	4	9	80
South Carolina					1		1	11
South Dakota			3	2	3		8	53
Tennessee	2		2	4	2		10	69
Texas	1	1	2	30	10		44	609
Utah							0	23
Vermont					1		1	36
Virginia				3		2	5	34
Washington	4	2	2	1	3		12	161
West Virginia	2		1	5	8	3	19	118
Wisconsin	5		4	1	1		11	167
Wyoming							0	17
Cambodia							1	0
Canada	1		1	1	2		5	112
China	1			1			2	0
El Salvador				1			1	0
Himalaya			1				1	0
Iran		5	1	1			7	0
Jordan	2			1			3	0
Malaya				1			1	0
Panama			1				1	0
Port of Spain			1				1	0
Puerto Rico			1				1	0
Other Foreign Countries								83
Total	232	355	218	370	316	375	1,866	12,626

TABLE XII—LENGTH OF PREPROFESSIONAL TRAINING OF OSTEOPATHIC MATRICULANTS, FALL OF 1956

College	3 years	3+ years	Degree	Advanced Degree	Total
CCO	9	11	45	3	68
COPS	16	23	50	4	93
DMS	7	15	40	2	64
KC	12	12	62	6	92
KCOS	11	12	60	1	84
PCO	4	4	81	5	94
Total	59	77	338	21	495
			72.5%		

TABLE XIII—LENGTH OF PREPROFESSIONAL TRAINING OF OSTEOPATHIC MATRICULANTS, FALL OF 1955

College	3 years	3+ years	Degree	Advanced Degree	Total
CCO	7	9	46	6	68
COPS	15	15	60	6	96
DMS	6	6	51	0	63
KC	9	16	72	6	103
KCOS	12	17	74	0	103
PCO	7	9	67	4	87
Total	56	72	370	22	520
			75%		

The Bureau of Professional Education and Colleges of the American Osteopathic Association and the American Association of Osteopathic Colleges emphasize a good background of English and general education, in addition to the prerequisite courses in the fields of chemistry, biology, and physics. The average student who is interested in the healing arts in general is apt to be one who primarily is interested in science. Many students make up their minds to become physicians during their high school courses in biology or chemistry and upon entering undergraduate college naturally pursue their primary interest, which, in most cases, is a scientific one.

It is natural for the preprofessional student contemplating entering one of the healing arts to choose science, whether chemistry or biology or a combination of both, as one of his majors. In most undergraduate colleges and universities, strong courses in English, foreign language, and the humanities are required for graduation.

The average entering student in osteopathic colleges in 1956 had completed 112 semester hours, including 24 semester hours of chemistry, 24 semester hours of biologic science, 8 semester hours of physics, and 12 semester hours of English. The average entering student, therefore, had spent exactly one half of his time in the field of science and one half of his time in English and the humanities during his preprofessional college training.

For the past 3 years correlation studies have been made of the osteopathic college first-year students upon the completion of their first year. Grades in the various basic science courses presented the first year were compared with grades made in the various science courses in preprofessional colleges. In general, it has been found that as a result of these studies, there is very little correlation between quality of work done during the first year and the amount of preprofessional courses in the science area. For example, upon comparing grades made in physiologic chemistry during the first year and the amount of chemistry completed prior to entrance, it was found that the correlation coefficient was 0.24. The number of chemistry courses, therefore, that a student completes in preprofessional colleges does not have much bearing on the student's success in physiologic chemistry.

There is a definite correlation, however, between the quality of work done in physiologic chemistry and the quality of work which had been completed in undergraduate chemistry courses. There is very little indication that the amount of work done in undergraduate biologic sciences has any bearing on the quality of work done in anatomy and physiology.

The highest correlation coefficient was found to be in the general over-all scholastic average of preprofessional college work and the over-all scholastic average at the end of the first year. This coefficient, based on the last three entering classes, is 0.69. It also is pointed out that preparation in English apparently predicts just as well as the over-all scholastic average the quality of the student's work in the first year of professional study.

Combined degrees

Many students entering osteopathic colleges are interested in securing a B.A. or B.S. degree either before matriculating in the professional school or after completing the first year in the osteopathic college. A number of colleges of arts and sciences have agreed to confer the baccalaureate degree upon their students who do satisfactory work for 3 years and then successfully complete their first year in an approved osteopathic college.

In recent years the combined degree has been granted to students who have completed their first year's work in an osteopathic college by the following colleges and universities:

George Pepperdine College, Los Angeles, California
Roosevelt University, Chicago, Illinois
DePauw University, Greencastle, Indiana
Iowa Wesleyan College, Mount Pleasant, Iowa
St. Ambrose College, Davenport, Iowa
Albion College, Albion, Michigan
Alma College, Alma, Michigan
Central Michigan College, Mount Pleasant, Michigan
Hillsdale College, Hillsdale, Michigan
Michigan State University, East Lansing, Michigan
Western Michigan College, Kalamazoo, Michigan
St. John's University, Collegeville, Minnesota
Northeast Missouri State Teachers College, Kirksville, Missouri
University of Omaha, Omaha, Nebraska
Brooklyn College, Brooklyn, New York
Colgate University, Hamilton, New York
St. Lawrence University, Canton, New York
Syracuse University, Syracuse, New York
University of Buffalo, Buffalo, New York
Denison University, Granville, Ohio
Kent State University, Kent, Ohio
University of Toledo, Toledo, Ohio
Phillips University, Enid, Oklahoma
Thiel College, Greenville, Pennsylvania
West Texas State Teachers College, Canyon, Texas
Utah State Agricultural College, Logan, Utah
Concord College, Athens, West Virginia
West Virginia Wesleyan College, Buckhannon, West Virginia

Veterans under the G.I. bills

In the fall of 1956, 17 per cent of the undergraduate enrollment in the six osteopathic colleges were receiving financial aid under Public Law 16 (disabled veterans) and Public Law 550 (Korean Bill of Rights). Although the number of veterans on G.I. bills shows a marked increase in the first-year classes over the first-year classes a year ago, the over-all enrollment of veterans is 1 per cent less than in 1955. It is apparent that most of the veterans under Public Law 550 have used up, during their preprofessional training, a major portion of the financial assistance to which they were entitled.

TABLE XIV—NUMBER OF VETERANS UNDER G.I. BILLS

College	First-Year Students	Second-Year Students	Third-Year Students	Fourth-Year Students	Total	Per Cent of Student Body
CCO	16	9	8	3	36	15½
COPS	36	22	11	2	71	20
DMS	12	11	8	0	31	14
KC	21	19	17	6	63	17
KCOS	19	20	9	5	53	17
PCO	27	17	9	7	60	16
Total	131	98	62	23	314	17

National osteopathic college scholarships

The Auxiliary to the American Osteopathic Association inaugurated a scholarship program in the fall of 1949. Five osteopathic scholarships of $1,000 each are awarded each year. Information about the scholarships is mailed each fall to the deans of approved colleges of arts and sciences throughout the United States and Canada. The scholarships are applied to the college tuition at the rate of $500 per year for the first 2 years in the osteopathic colleges in which the applicants matriculate. Applications for the scholarships for the entering classes in 1957 will close May 1, 1957.

A scholarship applicant must have received at least tentative acceptance from an osteopathic college in order to be eligible to make application for scholarship aid. Information about the scholarship program can be secured at the Office of Education, American Osteopathic Association, 212 East Ohio Street, Chicago 11, Illinois.

Scholarship awards will be made on the basis of quantity and quality of preprofessional work, the score on the interest inventory, personality factors, financial need, and motivation toward the osteopathic school of medicine.

In 1956 the five scholarship winners were as follows:

Name	Preprofessional College Attended	Osteopathic College Entered
Keith A. Buzzell	Boston University Boston, Massachusetts	Philadelphia College of Osteopathy
John B. Dickerson	Muskingum College Concord, Ohio	Kirksville College of Osteopathy and Surgery
Ronald G. Gadway	Atlantic Union College South Lancaster, Massachusetts	Kansas City College of Osteopathy and Surgery
Guy H. Hort	Northwestern State College Alva, Oklahoma	Kirksville College of Osteopathy and Surgery
Richard F. Keyes	Central Michigan College Mount Pleasant, Michigan	Chicago College of Osteopathy

Additional scholarship aid

The Auxiliary to the California Osteopathic Association for several years has been awarding one scholarship a year to an applicant to the College of Osteopathic Physicians and Surgeons in Los Angeles. Information regarding this scholarship aid may be obtained by writing Mrs. James C. Long, 2722 West 111th Street, Inglewood, California.

The Maine Osteopathic Association initiated a scholarship program in 1953 which provides $500 toward tuition during the first year for a student who has received his preprofessional training in an approved college or university in the state of Maine and who has been accepted for admission to any of the osteopathic colleges. Information regarding this scholarship may be obtained by writing to Dr. John M. Thurlow, Professional Building, Waterville, Maine.

The staff of the Garden City Hospital, Garden City, Michigan, initiated a scholarship program in 1954 which will provide annually at least $360 to be applied toward tuition. The applicant must be a resident of the state of Michigan and must show evidence of financial need. Information about these scholarships may be obtained by writing Dr. John T. Baker, treasurer, Garden City Hospital Scholarship Fund, 1810 North Telegraph Road, Dearborn, Michigan.

The Eastern District of the Oklahoma Osteopathic Association has established a scholarship fund. The award is made on the basis of motivation, personality, and the probability of good professional material. Grade point average is also considered in choosing the recipient of the award. The applicant must reside in the state of Oklahoma. Information about this scholarship may be obtained by writing Dr. M. J. Schwartz, secretary-treasurer, Eastern Oklahoma Osteopathic Association, 705-06 Manhattan Building, Muskogee, Oklahoma.

The Canadian Osteopathic Association awards two scholarships a year to young men and women in Canada who are planning to study osteopathy and to practice in any province of Canada. Information about these scholarships may be obtained by writing to Miss Joyce S. Currie, secretary, Canadian Osteopathic Association, 609 Medical Arts Building, Montreal 25, Quebec, Canada.

Various loan funds are maintained and administered by the osteopathic colleges for third- and fourth-year students. The American Osteopathic Association for many years has administered a large loan fund, which is available to osteopathic students in their third and fourth years upon recommendation of their respective college deans.

The Osteopathic Foundation also maintains a student loan fund for third- and fourth-year students in osteopathic colleges who are recommended by their faculty committees. Inquiries may be sent to the chairman of the Osteopathic Foundation, Student Loan Fund Committee, 212 East Ohio Street, Chicago 11, Illinois.

Educational Standards for Osteopathic Colleges*

Approved by the Board of Trustees of the American Osteopathic Association

Admission requirements

1. A minimum of three years of college training in a college or university accredited by a regional educational association is desirable for admission to professional education in an osteopathic college.† An applicant for admission must have completed at least one-half of the required credit for a baccalaureate degree in an accredited college to be considered for admission to an osteopathic college. In exceptional cases, a duly recognized and approved osteopathic college may request that the academic credentials of a highly qualified student, who has completed his preprofessional work in a college or university not accredited by a regional educational association, be evaluated by the Bureau of Professional Education and Colleges of the American Osteopathic Association. Approval of such credentials by the Bureau must be obtained before admission of any such exceptional student to an osteopathic college. Each such case shall be considered upon an individual basis.

All transcripts of records from other schools shall be obtained directly from such schools. Transcripts presented directly by the applicant will not be acceptable.

The official transcript of each applicant must show the satisfactory completion of the following minimum credits in basic subjects prior to admission:

English	6 semester hours (12 hours recommended)
Physics	‡6 to 8 semester hours
Biology	‡6 to 8 semester hours (12 hours recommended)
Inorganic Chemistry	8 semester hours
Organic Chemistry	4 to 8 semester hours, including both the aliphatic and benzene compounds

It is desirable that the elective subjects afford a broad educational and cultural background.

2. The American Council on Education has evaluated the content and quality of the various educational programs conducted by the Armed Forces and has

*Revised and issued by the Bureau of Professional Education and Colleges of the American Osteopathic Association, 1956.

†Undergraduate college programs are accredited by the following five regional educational associations:

Middle States Association of Colleges and Secondary Schools
North Central Association of Colleges and Secondary Schools
Northwest Association of Secondary and Higher Schools
Southern Association of Colleges and Secondary Schools
Western College Association

The New England Association of Colleges and Secondary Schools is not an accrediting agency, but has standards for membership similar to those maintained by the above five accrediting agencies. Membership in the New England Association of Colleges and Secondary Schools is recognized by the American Osteopathic Association as approval of the colleges in that area.

All approved undergraduate colleges require high school graduation or its equivalent for admission.

‡Whichever is a complete year's course in the college involved.

issued a "Guide to the Evaluation of Educational Experiences in the Armed Forces" to assist educational institutions, desiring to do so, to award proper college credits for specific courses taken in these programs.

The following statement is accepted by the American Osteopathic Association as a basis for the evaluation of equivalency of college credits:

College credits (except in science courses requiring laboratory work or except blanket credits for military services not based on courses or examinations) may be based either on (a) courses taken from the Armed Forces Institute or in service courses of the Armed Forces according to the "Guide to the Evaluation of Educational Experiences in the Armed Forces" of the American Council on Education, or (b) performance in the General Educational Development Tests of the American Council on Education.

3. In addition to the academic requirements listed in paragraphs 1 and 2, applicants to osteopathic colleges shall be selected on the basis of academic performance, osteopathic motivation and personal qualifications.

4. With the consent of the Bureau of Professional Education and Colleges, upon due individual consideration, not more than two years of time credit may be accorded to students presenting credentials from other than osteopathic professional schools. Neither time credit nor subject credit shall be accorded, unless such credit can unmistakably be interpreted as the equivalent of courses in the same subjects over the same period of time in the osteopathic college which grants the credit.

5. Credit for work done in other approved medical schools may be accorded only after most careful individual evaluation.

Educational standards

(Minimum requirements)

1. *Organization.*—

An osteopathic college shall be incorporated as a non-profit institution.

The Board of Trustees shall be composed of persons, including a strong representation of laymen, interested in the advancement of the osteopathic school of practice. No member or officer of the Board shall receive financial remuneration from the operation of the college or its associated teaching hospitals. The members of the Board should serve sufficiently long terms so that continuity of the institution's program will be carried out without precipitate change in policy. Since the Board of Trustees is the responsible corporate body and is required to establish policy in the direction and guidance of the administration and the educational activities of the institution, it follows that a member of the administrative staff or faculty should not be a member or officer of the Board of Trustees.

The institution must be organized to conform to accepted standards of professional education as to business management, faculty and professional staff.

Since the proper teaching of osteopathic medicine cannot be accomplished with the revenue derived through income from students, an acceptable college must show adequate additional income.

The primary objective of the college shall be to provide an educational program which will prepare osteopathic physicians and surgeons for general practice in osteopathic medicine. Such an educational program will afford the proper foundation for any course of continuing training as may prove desirable.

Administration and faculty shall consist of persons who are (a) devoted to the primary objective of the college, (b) possessed of such qualifications and purposes as will assure the perpetuation of the osteopathic school of medicine, and (c) inspired toward the further development of distinctive osteopathic contribution to the broad field of medicine.

The evaluating agency for osteopathic teaching institutions is the American Osteopathic Association, acting through its Board of Trustees on recommendation of the Bureau of Professional Education and Colleges.

The college shall afford to proper representatives of the American Osteopathic Association unhampered opportunities to study and inspect the facilities, students, faculty and administration, including a study of all records, credentials, grading, promotion and graduation procedures.

The colleges shall fill out, annually, student personnel information blanks for the Association's records and suppy lists of students by classes in order that accurate information may be recorded in the files of the Association. The college shall complete annual college survey blanks as requested by the Bureau of Professional Education and Colleges of the American Osteopathic Association.

The college shall seek membership in the American Association of Osteopathic Colleges and enter into agreement with the members of that Association and the Bureau of Professional Education and Colleges of the American Osteopathic Association as to credits to be granted and regulations to be followed in the transference of students from one osteopathic college to another.

2. *Administration.*—

The college shall be under the direction and supervision of a president, dean or other executive officer, selected because of his particular training and experience and capable of interpreting the prevailing standards for osteopathic education. This individual shall have authority to carry these standards into effect. Appointment and promotion of the administrative staff shall be made by the Board of Trustees, on the recommendation of the executive officer. Appointment and promotion of the faculty shall be made by the Board of Trustees on the recommendation of the chief executive officer, who shall transmit to the Board of Trustees the recommendations of the dean developed through consultation with the department chairmen.

The number of students for which the institution can adequately provide an educational program shall be taken into consideration in determining the necessary faculty and clinical, laboratory and hospital facilities.

A system of faculty-student advisers shall be established, and opportunity for frequent personal contact between members of the faculty and of the student body shall be provided.

Each college shall publish a catalog not less frequently than every other year. Catalogs shall list the courses available, the faculty members and the time schedule. Catalogs shall set forth the entrance requirements, tuition fees, and such general information as is necessary to the members of the student body. The list of students enrolled each year shall be included.

A committee of the faculty for the evaluation of entrance credentials shall assist the executive officer in evaluating the qualifications of applicants.

Faculty meetings shall be held at stated intervals at which time reports of the various faculty committees shall be presented to the faculty.

Records of preliminary education and certification thereof shall be kept on file permanently for examina-

tion by proper officials. The system of records must show in detail throughout the college course, the attendance record, grade and any other notations useful in evaluating the total work of each student.

Students shall be required to be in actual attendance within the first week of each term for which they receive credit. Each student shall be required to be in actual attendance in the institution during the four years required for his undergraduate work unless time credit has been accorded for work actually pursued in attendance at another osteopathic college approved by the American Osteopathic Association or in other similarly approved colleges. Students shall complete at least the last year of their undergraduate course in residence in the college which confers the degree.

No credit shall be accorded in any course wherein the record indicates an attendance of less than 80 per cent.

Graduates must be at least 21 years of age at the time of graduation.

3. *Faculty.*—

A competent teaching faculty shall be selected and it shall be organized into departments. In addition to other qualifications, consideration should be given to thorough training, a successful teaching experience, clinical experience and demonstrated ability or desire to engage in research. In the selection of faculty members, the executive officer should consult with the department heads and transmit to the Board of Trustees recommendations developed through such conferences.

Faculty members should have a reasonable security and tenure.

The faculty roster should list at least ten full-time teachers of professional rank. In the laboratory courses there should be a minimum ratio of one assistant for each 25 students.

A qualified librarian should be employed to supervise and develop the library.

4. *Plant.*—

A college must have for its exclusive use adequate buildings, which provide lecture rooms, laboratories, library and administrative offices.

The medical library should include the modern texts, reference books, and the leading periodicals needed in the teaching program.

5. *Teaching Aids.*—

Each institution should have a museum of pathological and anatomical specimens, and such auxiliary adjuncts, including visual aids, as are desirable for effective teaching.

A sufficient number of cadavers should be provided so that every two students may dissect at least a lateral half.

A supply of animals should be provided for use in the college laboratories. Adequate provision shall be made for their care and housing.

6. *Clinical Facilities.*—

Each college shall operate a general clinic. Histories and records in the clinic shall be maintained and utilized as teaching material. Clinics should be organized so that patients may be cared for in the clinic or in their homes.

Osteopathic colleges must have access, for teaching purposes, to a general hospital or hospitals affiliated with, or under control of, the college.

The college should appoint those who direct the clinical teaching, or supervise the staff concerned with teaching in such hospitals in order that proper supervision can be exercised over students in their contact with patients.

Students should have opportunity of observing and studying a wide variety of diseases ranging from the common case problems to the complex and rare conditions. The material available should be used to its greatest teaching value. The student class should be so organized as to afford the closest possible approach to individual instruction.

Clinical clerkships should be provided. Students should observe, keep records and administer treatment under the supervision of the teaching staff.

An obstetrical clinic must be conducted so that each student shall be properly trained in the care and management of obstetrical cases. All areas of clinical participation shall be under the supervision of the responsible teaching class. A carefully prepared report and summary shall be compiled by the student for each case under his observation.

Students shall attend post-mortem examinations under the direction of the Department of Pathology. Each student shall prepare protocols on at least six post-mortem examinations.

Training Criteria for the Clinical Clerkship in the Hospital:

Clinical clerkship programs in hospitals which are not on the campus of an approved college, and not under the immediate authority of the college administration shall be approved only in hospitals having the approval of the American Osteopathic Association for either intern or residency training or both.

Facilities for clinical clerkship training under the immediate authority of the college which fall in categories other than outpatient clinics and approved hospitals shall be inspected and appraised for approval on an individual basis.

The program must provide educational experience in the various departments of the hospital.

There must be a definite program of instruction, including case recording and study, clinical observation, collateral reading, didactic work and a regular program of staff lectures, clinical conferences, etc.

There must be adequate daily supervision of the student, and his progress must be reported regularly to the college.

A properly qualified individual must be designated as in charge of the clerkships in the affiliated institution. This individual should be directly responsible to the dean of the college with which the hospital is affiliated.

The clinical faculty in the affiliated institution must be composed of qualified members properly organized as a teaching faculty.

The sufficiency and diversity of clinical material in the affiliated institutions should determine the number of students to be trained at any one time.

Such programs shall be evaluated by the Bureau of Professional Education and Colleges in the accreditation procedure for the colleges.

7. *Curriculum.*—

Since the osteopathic profession and its colleges maintain their independence and distinction in the general field of medicine because of the contribution which osteopathy makes to the prevention, the diagnosis and the treatment of disease, and because the importance of maintaining the structural integrity of the body should be recognized and emphasized in all departments of practice, approved osteopathic colleges are required to give adequate and comprehensive training in the principles and practice of osteopathic diagnosis and therapeutics. This requirement includes, first, the presentation of special courses of instruction in distinctively osteopathic subjects, particularly applied anatomy

and physiology, osteopathic principles, structural pathology and osteopathic manipulative technics.

In addition to the special courses named hereafter, the course content of the basic science subjects—anatomy, physiology, chemistry, pathology, bacteriology and immunology—should include the presentation and discussion of structural pathologies, their presence, their effects, their influence on anatomical relationships, the physiological and chemical reactions of the body, the progression of pathological changes, and the natural resistance of the body to the invasion of microorganisms.

During the clinical years, the part played by structural pathologies in the etiology, pathology, diagnosis, prognosis and treatment of all classifications of diseases shall be presented and fully discussed. The incorporation of structural findings in case records and the application of osteopathic manipulative treatment, whenever indicated, shall be required in the management of every teaching case in the outpatient clinic and the teaching hospital.

The curriculum in a college of osteopathy should be presented in a minimum of four standard academic years of at least one thousand (1000) hours each and should include adequate and comprehensive instruction in:

Anatomy
Embryology
Histology
Physiology
Biochemistry
Pharmacology
Toxicology
Sanitation
Bacteriology
Parasitology
Immunology
Radiology
Surgery
Orthopedic Surgery
Urology
Otorhinolaryngology
Ophthalmology
Anesthesiology
Comparative Therapeutics
Materia Medica—associated subjects
Pathology
Public Health—Preventive Medicine
Hygiene
Obstetrics and Gynecology
Osteopathic Medicine
Osteopathic Principles, Practice and Technic
Internal Medicine
Neurology
Psychiatry
Pediatrics
Dermatology and Syphilology
Therapeutics
Tropical Medicine

8. *Degree.*—

Inasmuch as the degree of Doctor of Osteopathy is a time-honored designation, conferred by colleges of osteopathy to distinguish the graduates of the osteopathic school of practice; since it is a term legalized by charters of all osteopathic colleges and a legal term written into many laws governing the practice of osteopathic physicians and surgeons; since it is the term used in literature, reference books, governmental regulations (national, state, local, etc.) to designate graduates of this school; since it serves to distinguish such graduates from graduates of other schools of the practice of the healing arts; since it has become a well-confirmed precedent in designation of osteopathic physicians; since much labor has been expended to identify the degree with its exponents; therefore, the only degree to be issued by an approved osteopathic college qualifying candidates for examination for licensure to practice the healing arts shall be the degree, Doctor of Osteopathy.

It is not intended thereby to prevent approved osteopathic colleges from granting honorary degrees nor degrees in courses of such nature as shall be warranted by courses undertaken in whole or in part in the approved college.

A Brief History of Accreditation of Osteopathic Colleges

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Secretary, Bureau of Professional Education and Colleges
American Osteopathic Association
Chicago, Illinois

From the very early years of the founding of the osteopathic profession, its leaders and educators have recognized the necessity of attaining and maintaining high educational standards. Also, by 1898, when a number of osteopathic colleges had been established, their leaders realized the dangers that existed in the lack of uniformity in requirements for admission and for graduation, in the competition for students, and in the seeking of patronage.

In an effort to bring about cooperation in meeting these problems, the American School of Osteopathy issued an invitation to all osteopathic colleges to attend a meeting on June 28, 1898, for the purpose of forming an association of osteopathic colleges. Representatives of the American School and of the Northern, Pacific, Still, Bolles, and Milwaukee colleges attended the meeting. These schools became charter members of the Associated Colleges of Osteopathy when the organization was effected on June 29, 1898. A meeting of representatives of the osteopathic colleges has been held each year since that date.

During the period from its founding until 1901, when the Constitution of the American Osteopathic Association was adopted, the Associated Colleges, by majority vote of the members, adopted standards, and in one instance suspended one of the osteopathic college members for "irregular practices."

In 1901 the first Constitution of the A.O.A. was adopted. Among the several committees provided for by this Constitution was the Committee on Education. The Constitution provided that the Committee on Education of the A.O.A. and the Executive Committee of the Associated Colleges of Osteopathy should constitute a joint committee. The joint committee was given powers to investigate schools applying for membership in the Associated Colleges of Osteopathy, to make annual investigation of schools already members, and to make an annual report on these schools to the Board of Trustees of the A.O.A.

The Committee on Education of the A.O.A. was instructed by the Board of Trustees that the Board and members of the Association were principally interested in the following two viewpoints:

1. Does the character, equipment, and work of a particular school correctly represent osteopathy?

2. What kind of a man is he, both as to general character and professional qualifications, who, just from school, has opened an office near me for the practice of the same profession?

In 1901 the joint committee adopted the policy of appointing a member of the profession to serve as college inspector, sometimes referred to as "censor." Dr. E. R. Booth made the first college inspection in 1902, and upon the basis of his report to the Board of Trustees, the members of the Associated Colleges of Osteopathy were approved. In 1907 the By-Laws of the A.O.A., for the first time, provided machinery for the inspection and approval of osteopathic colleges; and in 1915, by action of the Board of Trustees of the A.O.A., it was agreed that the expense of college inspection should be borne by the American Osteopathic Association.

The name, Committee on Education, was retained until 1914, when it was changed to the Educational Department, through an amendment to the By-Laws. One of the most important contributions made by the old Committee on Education was the formulation of a standard osteopathic curriculum, which was finally adopted in 1913.

In 1921 the name of the Educational Department was changed to the Department of Education, and in 1923 the Department was renamed the Bureau of Professional Education. Two years later another bureau, the Bureau of Colleges, was organized, and until 1928 these two bureaus functioned under the same chairman. In 1928 the two bureaus were joined together, and in 1930 the present Bureau of Professional Education and Colleges was established. In 1931 the Board of Trustees approved the recommendation that the chairman of the Bureau of Professional Education and Colleges and the chairman of the Committee on College Inspection, a subcommittee of the Bureau, be one and the same person.

When Dr. R. MacFarlane Tilley became chairman of the Bureau of Professional Education (and automatically chairman of the Committee on College Inspection) in 1938, a policy was adopted to create official committees of two or three members to inspect each osteopathic college at least once every 2 years. In 1949 a new policy of college inspection, providing for a Survey Committee, was adopted. This policy provides for a complete survey of each college to be performed by a survey team of from four to seven members at least every 3 years. During the interim, each college is visited annually by an inspection committee of two or three members, which follows up the recommendations made by the survey team.

Methods and objectives of evaluation

In general, the plan for college evaluation consists in appraising the physical plant, the administration, the financial background, the faculty, the teaching equipment, the laboratories, the library, the clinical facilities, graduation requirements, the curriculum and its arrangement, departments, and courses, and the plan for hospital clerkships and internship against recognized and approved minimum standards known as Educational Standards for Osteopathic Colleges, as recommended by the Bureau of Professional Education and Colleges and approved (as most recently revised) by the Board of Trustees of the American Osteopathic Association.

Supplementary sources of information about a given institution, although they in no way supplant personal visitation and regular reporting, are also taken into consideration. Supplementary sources include informal reports from alumni, students, members of the faculty, directors, or members of the Board of Trustees; individual and group conferences held with representatives of the college away from the institution; correspondence; transcripts of credits and students' records; and study of the curriculum and the catalog. The results of tests and comprehensive examinations and the reputation and performance of graduates are also taken into consideration.

On the basis of required and properly compiled information, the Bureau of Professional Education and Colleges formally considers the status of each college and recommends approval of those favorably considered to the Board of Trustees. The action of the Board of Trustees is reported to the House of Delegates of the American Osteopathic Association. Recognition and approval of osteopathic colleges is accorded by official action of the American Osteopathic Association rather than by any of its agencies. The American Osteopathic Association, through its Bureau of Professional Education and Colleges, is recognized by the United States Office of Education, the American Council on Education, and the majority of state boards of licensure as the only accrediting agency for colleges of osteopathy.

Actually, accreditation is a complex procedure which must take into consideration local conditions and many other intricate factors. It is impossible to approach the evaluation of an osteopathic college with mathematical formulas. From time to time various osteopathic colleges have been placed on probation, and some were eventually disapproved, which resulted in the closing of their doors.

It has been the practice of the Bureau to judge an institution for accreditation upon the total pattern that it presents, provided that the minimum standards are complied with. It is recognized that institutions may show wide variations in methods of presentation of courses and excellence of attainment, that superiorities in one phase of the work may compensate, in some measure, for deficiencies in other respects. It is considered desirable to cherish all institutional variations that seem educationally sound, while continuing to emphasize characteristics that are basic, such as the competence of the faculty, proper coverage of the curriculum, effective administration, adequate scholarship, sufficient clinical opportunities, and financial adequacy.

Conclusion

It is recognized that proper accreditation procedures for osteopathic colleges are essential to the growth of the profession. It is expected that the federal government and the individual states will place increasing emphasis upon these evaluations. Efficient and painstaking appraisals must continue to be made by representatives of the osteopathic school of practice.

It is interesting to note that medical education was the first educational field in which standardization was accomplished. The approval of educational institutions in this field by national professional organizations has been accepted by state educational authorities and other legal and legislative bodies for the past 40 years or more. The American Osteopathic Association is recognized as the approving authority for osteopathic education.

Osteopathic College Expansion

Since 1943 members of the osteopathic profession have been contributing generously to the six osteopathic colleges in a continuous financial aid program known as the Osteopathic Progress Fund. During the past several years an attempt has been made to interest the lay public in participation in the philanthropy for osteopathic colleges and hospitals. Funds derived from these sources are not only helping in the actual operating expenses of osteopathic colleges, but they also are being earmarked for expansion of educational facilities.

Since 1948 modest expansion of osteopathic college teaching facilities has made it possible to increase the total undergraduate osteopathic college enrollment from 1,500 to approximately 1,900 students. Further plans for the expansion of teaching facilities are rapidly taking shape. The majority of these plans primarily will increase facilities for the present maximum student enrollment. In the case of two osteopathic colleges, the expansion plans will permit a slight enrollment increase.

Chicago College of Osteopathy.—Property recently acquired by the College will be ready by the fall of 1957 to house all of the classrooms, laboratories, library, administrative offices, and student union facilities. The present outpatient clinic department will, therefore, be greatly increased. These plans will make it possible for the freshman class to be increased by 10 students, thereby increasing the total undergraduate enrollment eventually to 40 more students than at the present.

College of Osteopathic Physicians and Surgeons.—In November, 1954, a referendum was passed in Los Angeles County, providing $9,200,000 for the construction of a new 500-bed teaching osteopathic hospital, which will be one of the Los Angeles County Hospital units. This will increase hospital teaching beds for the senior class in the College of Osteopathic Physicians and Surgeons and also will increase the number of internships.

Funds from the Hill-Burton Hospital Construction Act were recently acquired by the College to build an addition to the physical rehabilitation unit of the outpatient clinic, thereby greatly increasing facilities for that phase of the clinical teaching program.

The members of the California Osteopathic Association 2 years ago voted to increase their state dues by $200 a year, the increase to go to the College of Osteopathic Physicians and Surgeons. This will amount to an income for the College of approximately $200,000 a year. Present plans do not include an enrollment increase.

Des Moines Still College of Osteopathy and Surgery.—During the past year the teaching clinic, immediately adjacent to the College, has tripled its former facilities for outpatient care, resulting in a great expansion in that phase of the teaching program. This expansion has made it possible for the College to more than double its former library facilities. No increase in student enrollment is contemplated at present.

Kansas City College of Osteopathy and Surgery.—With the help of funds furnished by the Hill-Burton Hospital Construction Act, the new college clinic will be erected on the present property of the College, which not only will greatly increase clinical facilities but also will free the space now used for outpatient care for use as additional classrooms and laboratories. No plans exist to increase enrollment.

Kirksville College of Osteopathy and Surgery.—The rural clinic program, which was started several years ago as an educational experiment, has been highly successful. Additional rural clinics within a 25- or 30-mile radius of Kirksville were established last year and, as funds permit, additional clinics will be initiated. This program has become an important phase in the clinical program of the senior year. No increase in enrollment is contemplated at present.

Philadelphia College of Osteopathy.—The College has acquired additional property for the future construction of a building, which will house all classrooms, laboratories, the library, assembly hall, and administrative and professional offices. It is contemplated that this structure will be ready for occupancy by the Fall of 1958. When these new facilities are available, the College plans to increase the size of the freshman class from 80 to 125, which will result in an eventual total increase in enrollment of 180 students. More space, therefore, will be provided for additional outpatient clinical facilities and additional teaching beds in the Philadelphia Osteopathic Hospital.

Dates of Next First-Year Student Matriculation

Chicago College of Osteopathy	Sept. 23-28, 1957	Kansas City College of Osteopathy and Surgery	Sept. 8, 1957
College of Osteopathic Physicians and Surgeons	Sept. 23, 1957	Kirksville College of Osteopathy and Surgery	Sept. 5-8, 1957
Des Moines Still College of Osteopathy and Surgery	Sept. 5-6, 1957	Philadelphia College of Osteopathy	Sept. 3-4, 1957

Registry of Hospitals

HOSPITALS APPROVED FOR TRAINING OF INTERNS

(For the Period from July 1, 1956, to June 30, 1957)

The length of American Osteopathic Association approved intern training is 12 months.

Allentown Osteopathic Hospital, Allentown, Pennsylvania
Art Centre Hospital, Detroit, Michigan
Audubon Osteopathic Hospital, Audubon, New Jersey
Bangor Osteopathic Hospital, Bangor, Maine
Bashline-Rossman Osteopathic Hospital, Grove City, Pennsylvania
Bay View Hospital, Bay Village, Ohio
Blackwood-Mims Clinic and Hospital, Comanche, Texas
Burbank Hospital, Burbank, California
Cafaro Memorial Hospital, Youngstown, Ohio
Cape Osteopathic Hospital, Cape Girardeau, Missouri
Carson City Hospital, Carson City, Michigan
Charles E. Still Osteopathic Hospital, Jefferson City, Missouri
Chicago Osteopathic Hospital, Chicago, Illinois
Civic Center Hospital, Oakland, California
Clare General Hospital, Clare, Michigan
Community Hospital, Houston, Texas
Community Medical Center, North Sacramento, California
Corpus Christi Osteopathic Hospital, Corpus Christi, Texas
Dallas Osteopathic Hospital, Dallas, Texas
Davenport Osteopathic Hospital, Davenport, Iowa
Des Moines General Hospital, Des Moines, Iowa
Detroit Osteopathic Hospital, Detroit, Michigan
Doctors Hospital, Columbus, Ohio
Doctors Hospital, Los Angeles, California
Donovan Osteopathic Hospital and Clinic, Raton, New Mexico
Erie Osteopathic Hospital, Erie, Pennsylvania
Farrow Hospital, Erie, Pennsylvania
Flint General Hospital, Flint, Michigan
Flint Osteopathic Hospital, Flint, Michigan
Forest Hill Hospital, Cleveland, Ohio
Fort Worth Osteopathic Hospital, Fort Worth, Texas
Garden City-Ridgewood Hospitals
  Garden City Hospital, Garden City, Michigan
  Ridgewood Hospital, Ypsilanti, Michigan
Glendale Community Hospital, Glendale, California
Grand Rapids Osteopathic Hospital, Grand Rapids, Michigan
  Burton Heights Branch, Grand Rapids, Michigan
Grandview Hospital, Dayton, Ohio
Green Cross General Hospital, Cuyahoga Falls, Ohio
Hillside Hospital, San Diego, California
Hospitals of the Kansas City College of Osteopathy and Surgery
  Osteopathic Hospital, Kansas City, Missouri
  Conley Maternity Hospital, Kansas City, Missouri
Hospitals of Philadelphia College of Osteopathy
  The Hospital of Philadelphia College of Osteopathy, Philadelphia, Pennsylvania
  North Center Hospital of Philadelphia College of Osteopathy, Philadelphia, Pennsylvania
Houston Osteopathic Hospital, Houston, Texas
Kirksville Osteopathic Hospital, Kirksville, Missouri
Lakeside Hospital, Kansas City, Missouri
Lakeview Hospital, Milwaukee, Wisconsin
Lamb Memorial Hospital, Denver, Colorado
Lancaster Osteopathic Hospital, Lancaster, Pennsylvania
Laughlin Hospital and Clinic, Kirksville, Missouri
Long Beach Osteopathic Hospital-Magnolia Hospital
  Long Beach Osteopathic Hospital, Long Beach, California
  Magnolia Hospital, Long Beach, California
Los Angeles County Osteopathic Hospital, Los Angeles, California
Madison Street Hospital, Seattle, Washington
Mahoning Valley Green Cross Hospital, Warren, Ohio
Marietta Osteopathic Hospital, Marietta, Ohio
Massachusetts Osteopathic Hospital, Boston, Massachusetts
Maywood Hospital, Maywood, California
McCormick Osteopathic Hospital and Clinic, Moberly, Missouri
McLaughlin Osteopathic Hospital, Lansing, Michigan
Mesa Memorial Hospital, Grand Junction, Colorado
Metropolitan Hospital, Philadelphia, Pennsylvania
Mineral Area Osteopathic Hospital, Farmington, Missouri
Monte Sano Hospital, Los Angeles, California
Mount Clemens General Hospital, Mount Clemens, Michigan
Muskegon Osteopathic Hospital, Muskegon, Michigan
Normandy Osteopathic Hospital, St. Louis, Missouri
Northwest Hospital, Miami, Florida
Oklahoma Osteopathic Hospital, Tulsa, Oklahoma
Ontario Community Hospital, Ontario, California
Osteopathic General Hospital of Rhode Island, Edgewood, Cranston, Rhode Island
Osteopathic Hospital of Harrisburg, Harrisburg, Pennsylvania
Osteopathic Hospital of Maine, Portland, Maine
Park View Hospital, Los Angeles, California
Parkview Hospital, Toledo, Ohio
Phoenix Osteopathic Hospitals
  Phoenix Osteopathic Hospital, Phoenix, Arizona
  McDowell Branch, Phoenix, Arizona
Pontiac Osteopathic Hospital, Pontiac, Michigan
Portland Osteopathic Hospital, Portland, Oregon
Riverside Osteopathic Hospital, Trenton, Michigan
Riverview Osteopathic Hospital, Norristown, Pennsylvania
Rocky Mountain Osteopathic Hospital, Denver, Colorado
Saginaw Osteopathic Hospital, Saginaw, Michigan
San Gabriel Valley Hospital, San Gabriel, California
South Bend Osteopathic Hospital, South Bend, Indiana
Stevens Park Osteopathic Hospital, Dallas, Texas
Still Osteopathic Hospital, Des Moines, Iowa
Traverse City Osteopathic Hospital, Traverse City, Michigan
Waldo General Hospital, Seattle, Washington
Waterville Osteopathic Hospital, Waterville, Maine
West Side Osteopathic Hospital of York, York, Pennsylvania
Wetzel Osteopathic Hospital, Clinton, Missouri
Wilden Osteopathic Hospital, Des Moines, Iowa
Zieger Osteopathic Hospital, Detroit, Michigan

REGISTERED HOSPITALS

(For the Period from July 1, 1956, to June 30, 1957)

Altadena Community Hospital, Altadena, California
Alva Osteopathic Hospital, Alva, Oklahoma
Amarillo Osteopathic Hospital, Amarillo, Texas
Arcade Hospital, North Sacramento, California
Aspermont Hospital and Clinic, Aspermont, Texas
Axtell Osteopathic Hospital, Princeton, Missouri
Bellevue Hospital and Clinic, Houston, Texas
Big Sandy Clinic-Hospital, Big Sandy, Texas
Biscayne Osteopathic Hospital, Miami, Florida
Bloomfield Hospital, Pontiac, Michigan
Chesemore Clinic and Hospital, Paris, Tennessee
Clinic Hospital, Nowata, Oklahoma
Coats-Brown Clinic and Hospital, Tyler, Texas
Colorado Hospital, Canon City, Colorado
Crews Hospital and Clinic, Gonzales, Texas
Currey-Moore Clinic-Hospital, Mt. Pleasant, Texas
Delgado Green Cross Hospital, Ysleta, Texas
Denison Hospital and Clinic, Denison, Texas
Doctors' Hospital, Jacksonville, Florida
Donley Osteopathic Hospital, Kingman, Kansas
East Liverpool Osteopathic Hospital, East Liverpool, Ohio
Edgewater Hospital, Milwaukee, Wisconsin
Elliston Clinic and Hospital, Covington, Tennessee
Elm Street Hospital and Clinic, Denton, Texas
Elm Street Osteopathic Hospital, Battle Creek, Michigan
Elmo Osteopathic Hospital, Elmo, Missouri
Gleason Hospital, Larned, Kansas
Glendale Emergency Hospital, Glendale, California
Granby Community Hospital, Granby, Missouri
Groom Osteopathic Hospital, Groom, Texas
Guymon Osteopathic Hospital, Guymon, Oklahoma
Hamill Osteopathic Hospital, Fairfax, Oklahoma
Harrison Miller Memorial Hospital, Hinton, Oklahoma
Hayman's Private Hospital, Doylestown, Pennsylvania
Humphreys Osteopathic Hospital, Tuscumbia, Missouri
Hustisford Hospital, Hustisford, Wisconsin
Jackson Osteopathic Hospital, Jackson, Michigan
Joplin Memorial Hospital, Joplin, Missouri
Las Olas Hospital, Fort Lauderdale, Florida
Lincoln Hospital, Lincoln, Maine
Longs Peak Osteopathic Hospital, Longmont, Colorado
Lubbock Osteopathic Hospital, Lubbock, Texas
Manning General Hospital, Manning, Iowa
Marshfield General Hospital, Marshfield, Wisconsin
Martin Place Hospital, Detroit, Michigan
Mason Clinic and Hospital, Mason, West Virginia
McDonald County Osteopathic Hospital, Noel, Missouri
Memorial Osteopathic Hospital, Elizabeth, New Jersey
Mesa Osteopathic Hospital, Mesa, Arizona
Mineola General Hospital, Mineola, Texas
Mineral Spring Hospital, Louisiana, Missouri
Mt. Pleasant Hospital and Clinic, Mt. Pleasant, Texas
New Mexico Osteopathic Hospital, Albuquerque, New Mexico
New Valley Osteopathic Hospital, Yakima, Washington
Northeast Osteopathic Hospital, Kansas City, Missouri
New Jersey Osteopathic General Hospital, Dumont, New Jersey
Northwest General Osteopathic Hospital, Detroit, Michigan
Orlando Osteopathic Hospital, Orlando, Florida
Orrville Community Osteopathic Hospital, Orrville, Ohio
Osteopathic Hospital of Wichita, Wichita, Kansas
Ottawa Arthritis Hospital and Diagnostic Clinic, Ottawa, Illinois
Ozark Osteopathic Hospital, Springfield, Missouri
Palmer Osteopathic Hospital, Detroit, Michigan
Plattner Clinic and Hospital, Grand Prairie, Texas
Pool Memorial Hospital, Lindsay, Oklahoma
Porter Clinic-Hospital, Lubbock, Texas
Redfield Clinic Hospital, Redfield, Iowa
Reid Hospital and Clinic, Bethany, Missouri
Riley Sanatorium, North Muskegon, Michigan
Riverside Hospital, Wilmington, Delaware
*Rose Hospital, Los Angeles, California
Saco Osteopathic Hospital, Saco, Maine
San Antonio Osteopathic Hospital, San Antonio, Texas
Sandusky Hospital, Sandusky, Michigan
Sandusky Memorial Hospital, Sandusky, Ohio
Sheridan Community Hospital, Sheridan, Michigan
Steele City Osteopathic Hospital, Steele City, Nebraska
Still-Hildreth Osteopathic Sanatorium, Macon, Missouri
Still-Hildreth Osteopathic Sanatorium, Tulsa, Oklahoma
Stocker Hospital and Clinic, Oconomowoc, Wisconsin
Stratton Hospital and Clinic, Cuero, Texas
Talco Hospital and Clinic, Talco, Texas
Tigua General Hospital, El Paso, Texas
Todd Osteopathic Hospital, Osceola, Missouri
Trenton Osteopathic Hospital, Trenton, Tennessee
Trenton Osteopathic Hospital, Troy, Pennsylvania
Tucson General Hospital, Tucson, Arizona
Wellsburg Eye and Ear Hospital, Wellsburg, West Virginia
Wetzel Osteopathic Hospital, Carrollton, Missouri
Willamette Osteopathic Hospital, Albany, Oregon
Willard General Hospital, Manchester, Iowa
Wolfe-Duphorne Hospital, Athens, Texas
*Mixed Staff Hospital

Hospitals Approved for Training of Residents

(All Residencies Approved for the Period from July 1, 1956, to June 30, 1957)

The length of the American Osteopathic Association approved training program for each specialty is 3 years. Each hospital is approved for such program but requires recertification each year.

HOSPITAL	RESIDENCIES	NAME
Allentown Osteopathic Hospital Allentown, Pennsylvania	1	Roentgenology
Art Centre Hospital Detroit, Michigan	2	Anesthesiology
	1	Internal Medicine
	2	Pathology
	2	Radiology
	2	Surgery
Bangor Osteopathic Hospital Bangor, Maine	1	Roentgenology
	1	Surgery
Bay View Hospital Bay Village, Ohio	1	Diagnostic Roentgenology
Chicago Osteopathic Hospital Chicago, Illinois	1	Anesthesiology
	2	Internal Medicine
	2	Obstetrics & Gynecology
	1	Pathology
	1	Pediatrics
	1	Roentgenology
	1	Surgery
Dallas Osteopathic Hospital Dallas, Texas	1	Anesthesiology
	1	Pathology
	1	Surgery
Des Moines General Hospital Des Moines, Iowa	1	Anesthesiology
	1	Radiology
	2	Surgery
Detroit Osteopathic Hospital Detroit Michigan	4	Anesthesiology
	5	Internal Medicine
	5	Obstetrics & Gynecology
	1	Ophthalmology & Otorhinolaryngology
	3	Orthopedic Surgery
	3	Pathology
	3	Roentgenology
	6	Surgery
Doctors Hospital Columbus, Ohio	2	Anesthesiology
	2	Internal Medicine
	1	Ophthalmology & Otorhinolaryngology
	1	Orthopedic Surgery
	2	Roentgenology
	3	Surgery
Doctors Hospital Los Angeles, California	1	Surgery
Flint Osteopathic Hospital Flint, Michigan	1	Anesthesiology
	1	Internal Medicine
	2	Obstetrics & Gynecology
	2	Pathology
	1	Pediatrics
	1	Radiology
	1	Surgery
Fort Worth Osteopathic Hospital Fort Worth, Texas	1	Surgery
Garden City-Ridgewood Hospitals Garden City, Michigan	1	Anesthesiology
	1	Diagnostic Roentgenology
	1	Obstetrical-Gynecological Surgery
Grand Rapids Osteopathic Hospital Grand Rapids, Michigan	1	Obstetrical-Gynecological Surgery
	1	Roentgenology
	1	Surgery
Burton Heights Branch Grand Rapids, Michigan	1	Diagnostic Roentgenology
	1	Surgery
Grandview Hospital Dayton, Ohio	1	Anesthesiology
	1	Internal Medicine
	1	Obstetrics & Gynecology
	1	Ophthalmology & Otorhinolaryngology
	2	Orthopedic Surgery
	1	Pathology
	1	Roentgenology
	2	Surgery
Green Cross General Hospital Cuyahoga Falls, Ohio	1	Anesthesiology
Hospitals of the Kansas City College of Osteopathy and Surgery Kansas City, Missouri	2	Anesthesiology
	3	Internal Medicine
	2	Obstetrics & Gynecology
	1	Obstetrical-Gynecological Surgery
	2	Orthopedic Surgery
	2	Pathology
	1	Pediatrics
	1	Proctology
	2	Roentgenology
	2	Surgery
	1	Urological Surgery
Hospitals of Philadelphia College of Osteopathy Philadelphia, Pennsylvania	4	Anesthesiology
	5	Internal Medicine
	3	Obstetrical-Gynecological Surgery
	1	Ophthalmology & Otorhinolaryngology
	1	Orthopedic Surgery
	4	Pathology
	2	Pediatrics
	4	Radiology
	6	Surgery
Kirksville Osteopathic Hospital Kirksville, Missouri	2	Anesthesiology
	1	Diagnostic Roentgenology
	1	Internal Medicine
	1	Obstetrics & Gynecology
	2	Ophthalmology & Otorhinolaryngology
	2	Pathology
	2	Surgery
Lakeside Hospital Kansas City, Missouri	1	Anesthesiology
	1	Obstetrics & Gynecology
	1	Radiology
	2	Surgery
Lakeview Hospital Milwaukee, Wisconsin	1	Internal Medicine
	1	Surgery
Lancaster Osteopathic Hospital Lancaster, Pennsylvania	1	Roentgenology
	2	Surgery
Laughlin Hospital & Clinic Kirksville, Missouri	2	Surgery
Los Angeles County Osteopathic Hospital Los Angeles, California	2	Anesthesiology
	6	Internal Medicine
	2	Neurology & Neurosurgery
	2	Obstetrics & Gynecology
	2	Ophthalmology & Otorhinolaryngology
	2	Orthopedic Surgery
	4	Pathology
	2	Pediatrics
	2	Physical Medicine & Rehabilitation
	4	Radiology
	3	Surgery
	2	Urological Surgery
Massachusetts Osteopathic Hospital Boston, Massachusetts	1	Surgery
Maywood Hospital Maywood, California	1	Anesthesiology
Mount Clemens General Hospital Mount Clemens, Michigan	1	Anesthesiology
	1	Diagnostic Roentgenology
	1	Internal Medicine
	1	Pathology
	1	Surgery
Muskegon Osteopathic Hospital Muskegon, Michigan	1	Diagnostic Roentgenology
Normandy Osteopathic Hospital St. Louis, Missouri	1	Anesthesiology
	1	Diagnostic Roentgenology
	1	Surgery
Oklahoma Osteopathic Hospital Tulsa, Oklahoma	1	Surgery
Osteopathic Hospital of Maine Portland, Maine	1	Anesthesiology
	1	Internal Medicine
	1	Ophthalmology & Otorhinolaryngology
	1	Pathology
		Roentgenology
	1	Surgery
Park View Hospital Los Angeles, California	1	Surgery
Parkview Hospital Toledo, Ohio	1	Diagnostic Roentgenology
	1	Surgery
Riverside Osteopathic Hospital Trenton, Michigan	1	Anesthesiology
	1	Obstetrics & Gynecology
	1	Surgery
Riverview Osteopathic Hospital Norristown, Pennsylvania	1	Roentgenology
Rocky Mountain Osteopathic Hospital Denver, Colorado	1	Radiology
	1	Surgery
Saginaw Osteopathic Hospital Saginaw, Michigan	1	Anesthesiology
	1	Roentgenology
	1	Surgery
South Bend Osteopathic Hospital South Bend, Indiana	1	Diagnostic Roentgenology
Stevens Park Osteopathic Hospital Dallas, Texas	1	Surgery
Still Osteopathic Hospital Des Moines, Iowa	1	Anesthesiology
	1	Diagnostic Roentgenology
	2	Internal Medicine
	1	Obstetrics & Gynecology
	1	Pathology
	1	Pediatrics
	2	Surgery
West Side Osteopathic Hospital of York York, Pennsylvania	1	Surgery
Wilden Osteopathic Hospital Des Moines, Iowa	1	Diagnostic Roentgenology
	1	Internal Medicine
Zieger Osteopathic Hospital Detroit, Michigan	1	Anesthesiology
	1	Obstetrics & Gynecology
	2	Roentgenology
	1	Surgery

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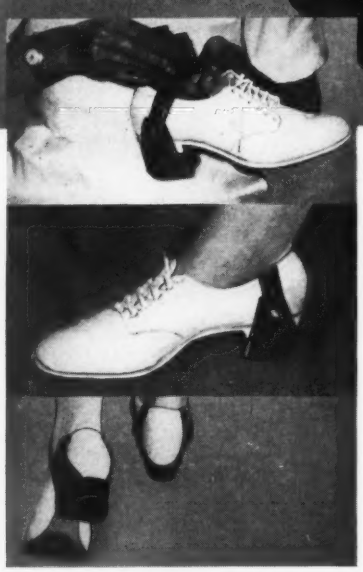

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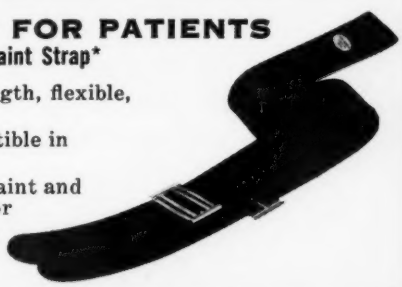

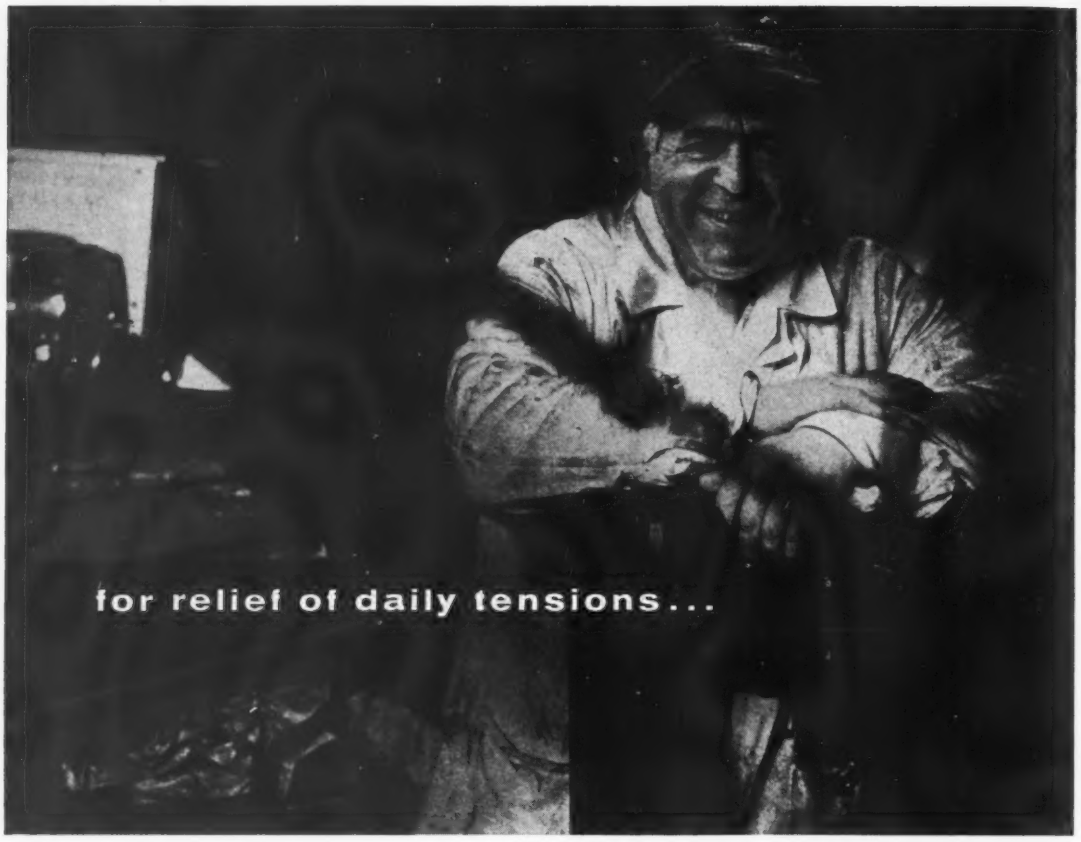

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*Ferguson, J. T.: J. Am. Geriatrics Soc. *4*:1080, 1956.

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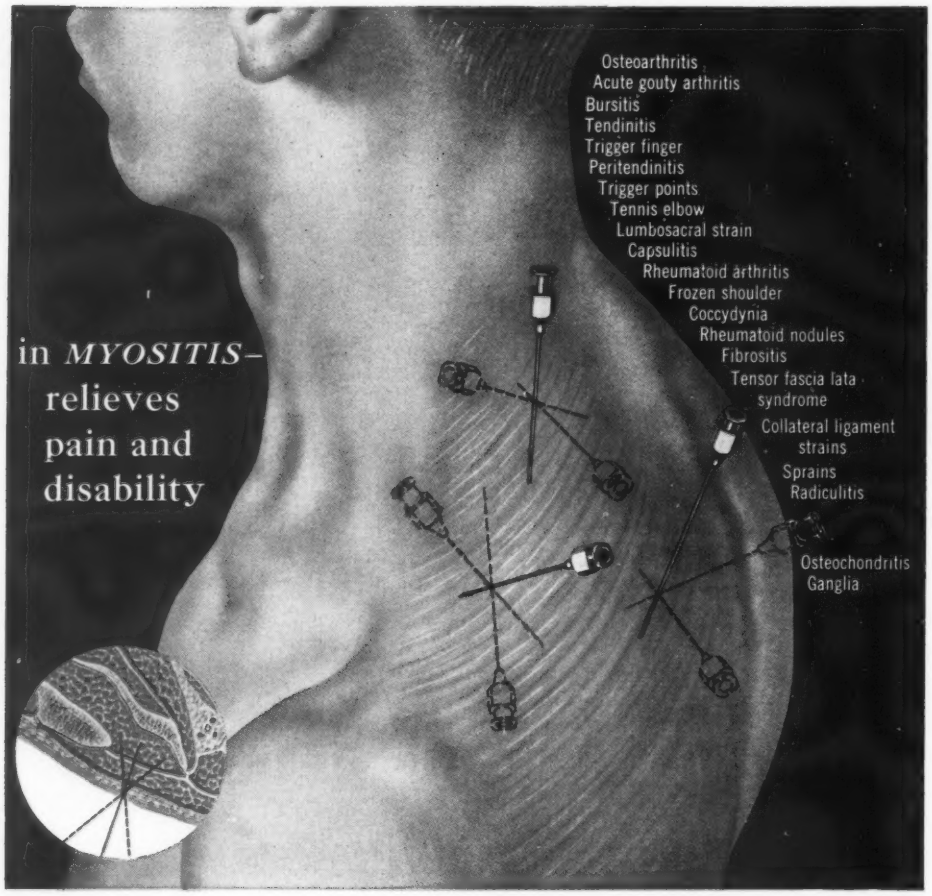

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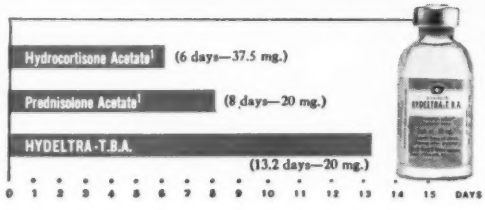
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Prednisolone Acetate[1] (8 days—20 mg.)
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Dosage: the usual intra-articular, intra-bursal or soft tissue dose ranges from 20 to 30 mg. depending on location and extent of pathology.

Supplied: Suspension 'HYDELTRA'-T.B.A.—20 mg./cc. of prednisolone *tertiary*-butylacetate, in 5-cc. vials.

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1. Hollander, J. L., *Paper read at conference in New York City, May 31 and June 1, 1955*

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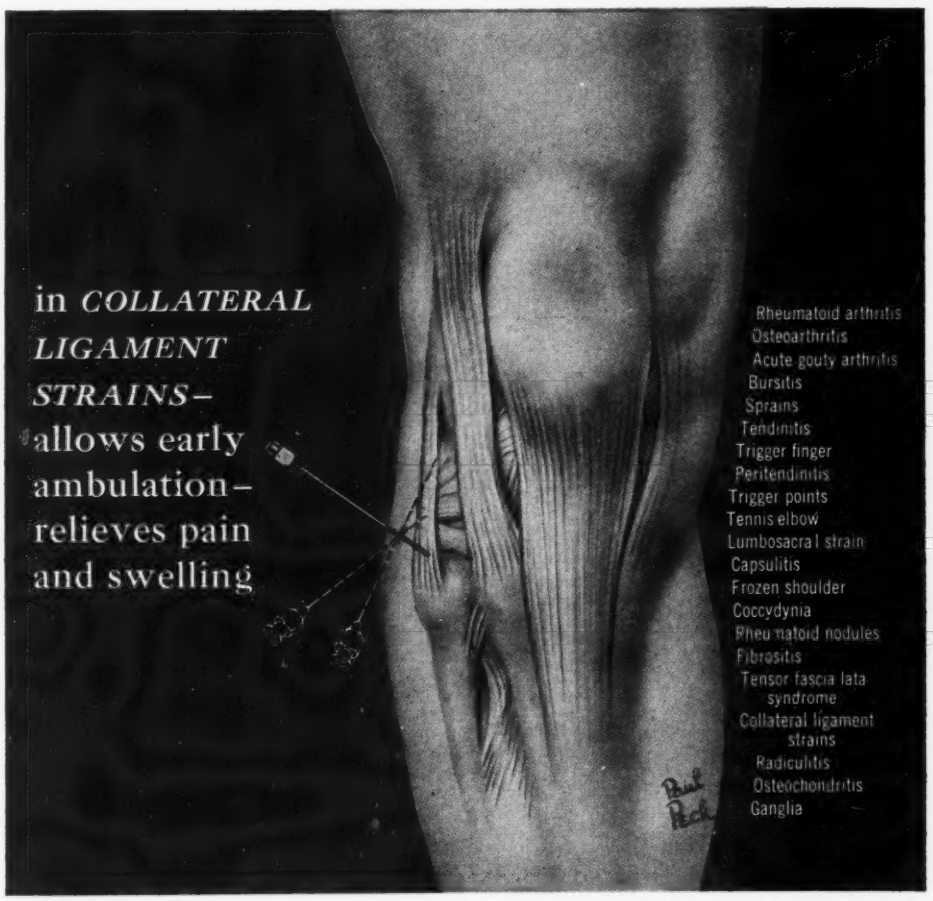
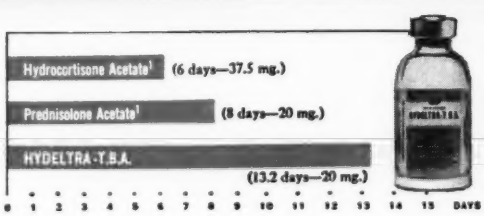


Duration of relief exceeds that provided by any other steroid ester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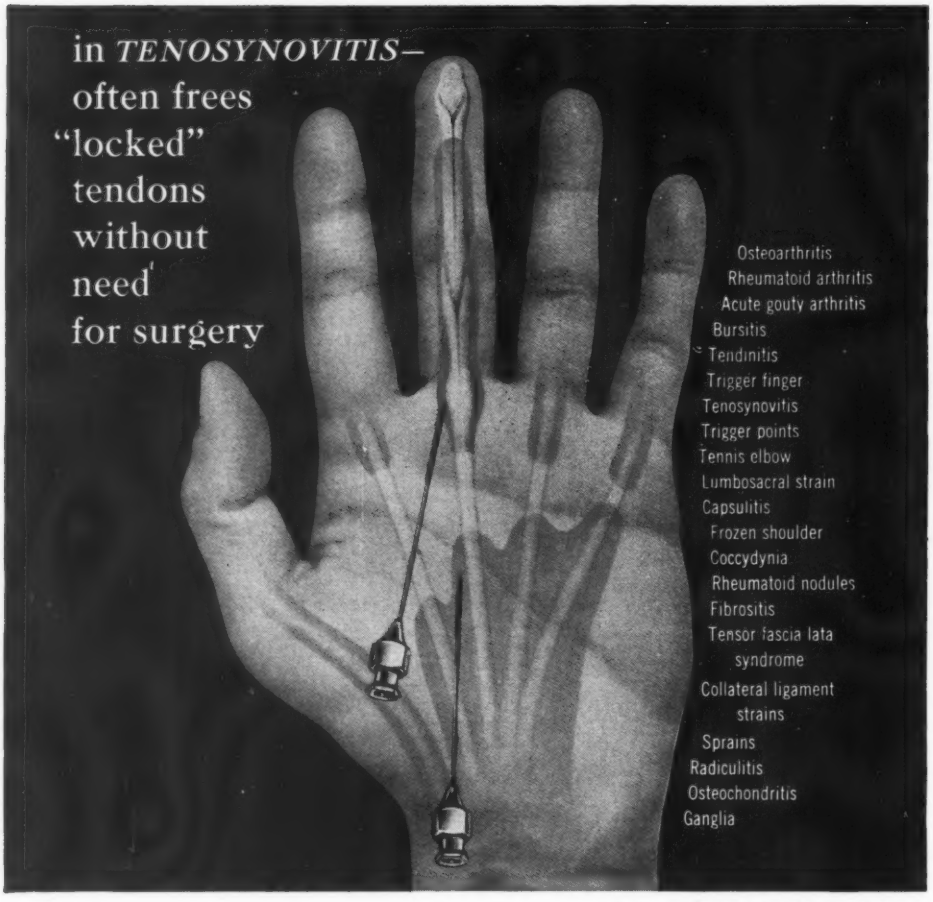

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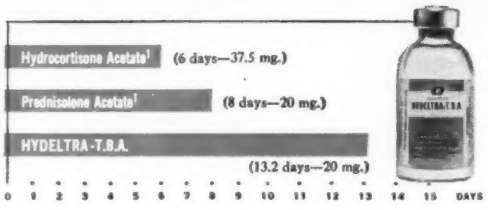
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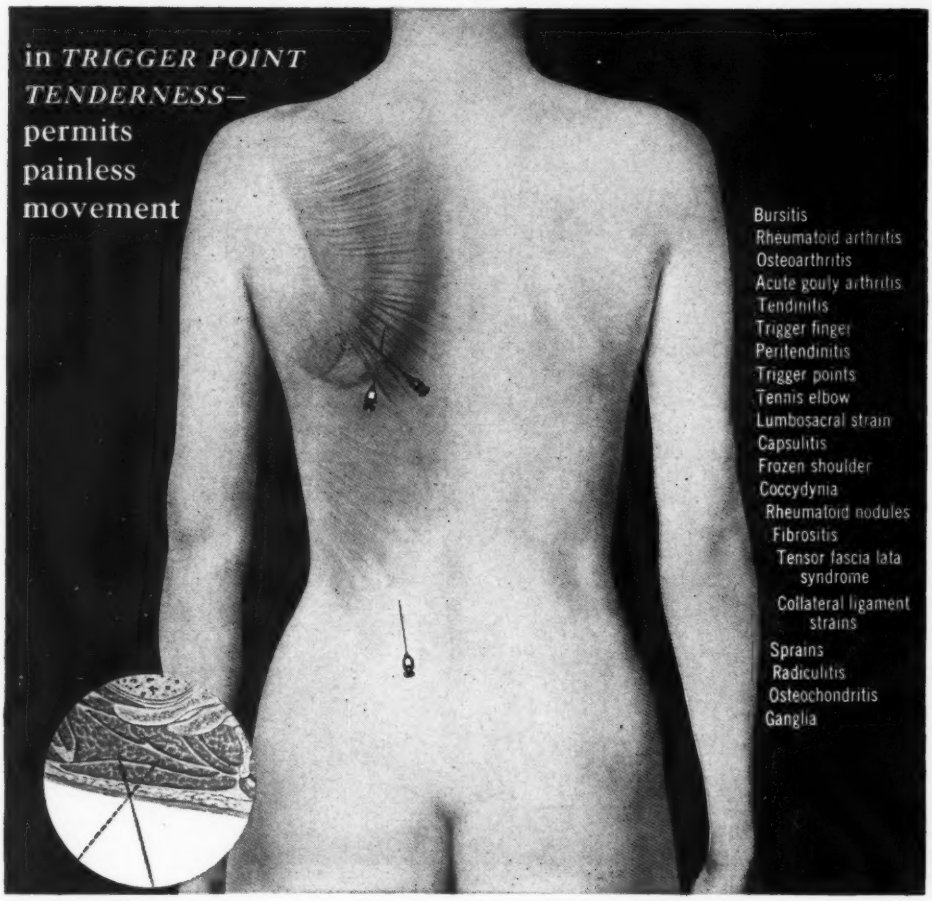

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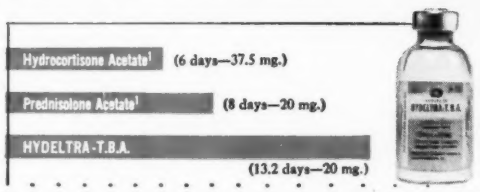
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in *SPRAINS*—
reduces tenderness,
swelling and
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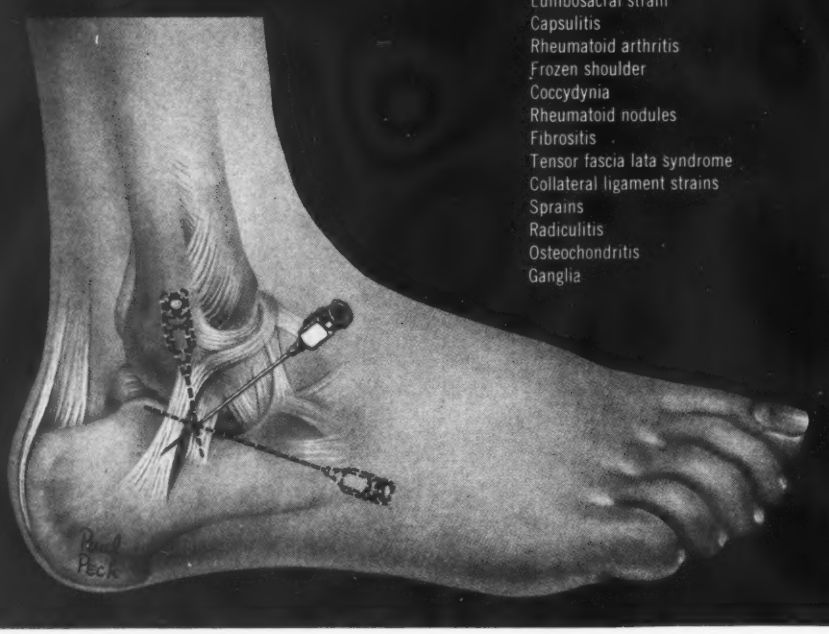
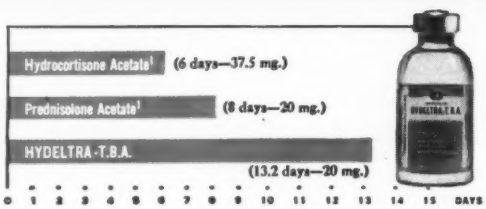
- Bursitis
- Tendinitis
- Trigger finger
- Peritendinitis
- Trigger points
- Tennis elbow
- Lumbosacral strain
- Capsulitis
- Rheumatoid arthritis
- Frozen shoulder
- Coccydynia
- Rheumatoid nodules
- Fibrositis
- Tensor fascia lata syndrome
- Collateral ligament strains
- Sprains
- Radiculitis
- Osteochondritis
- Ganglia



Anti-inflammatory effect lasts longer than that provided by any other steroid ester


Hydrocortisone Acetate[1]
(6 days—37.5 mg.)
Prednisolone Acetate[1]
(8 days—20 mg.)
HYDELTRA-T.B.A.
(13.2 days—20 mg.)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 DAYS

Dosage: the usual intra-articular, intra-bursal or soft tissue dose ranges from 20 to 30 mg. depending on location and extent of pathology.

Supplied: Suspension 'HYDELTRA'-T.B.A.—20 mg./cc. of prednisolone *tertiary*-butylacetate, in 5-cc. vials.

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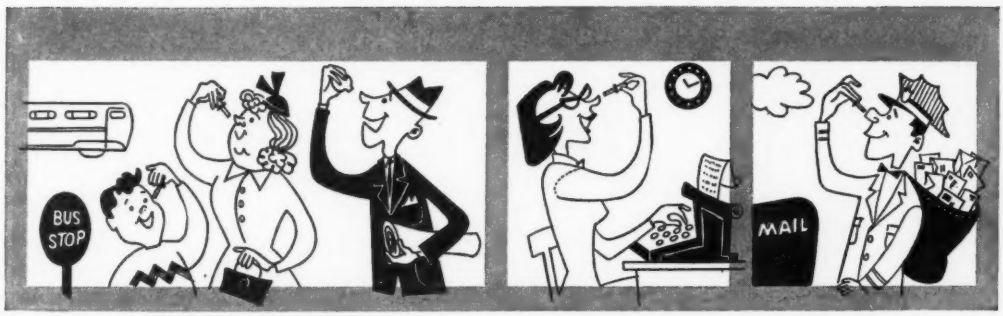
1. Hollander, J. L., *Paper read at conference in New York City, May 31 and June 1, 1955*



In Colds . . . *Anywhere . . . Any time . . .*

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Prompt and Prolonged Decongestion
Sinus Drainage and Aeration

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***Nasal Solutions 0.25%, 0.5% and 1%**
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for greater efficiency

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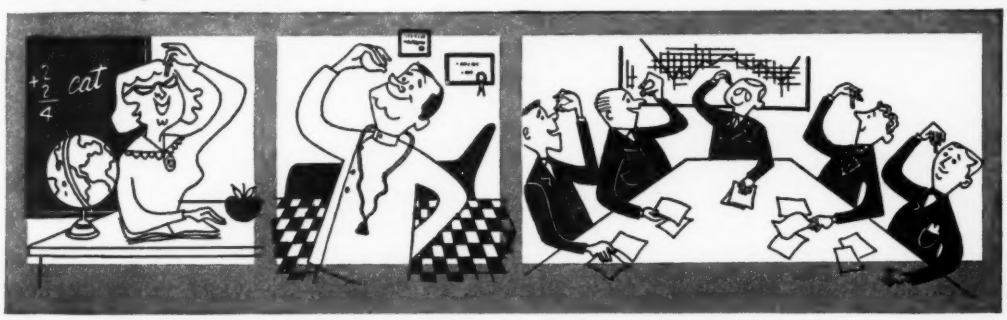

In Constipation
NEW CONFIRMING CLINICAL RESEARCH

"...dioctyl sodium sulfosuccinate [Doxinate] results in restoration of normal function both in terms of stool consistency and frequency."

—CASS, L.J., AND FREDERIK, W.S.: AM. J. GASTROENTEROL. (DEC.) 1956.

"Our results indicate that effective fecal softening is generally adequate to permit correction of chronic constipation of the spastic type."

—FRIEDMAN, M.: AM. PRACT. & DIGEST OF TREATMENT (OCT.) 1956.

"In the atonic group... the simultaneous use of mild laxation [Doxinate with Danthron]...is preferred...."

—FRIEDMAN, M.: AM. PRACT. & DIGEST OF TREATMENT (OCT.) 1956.

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WITH
DANTHRON

PATENT PENDING

PARTICULAR CONDITIONS FOR DOXINATE THERAPY

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- Anorectal Conditions
- Pregnancy
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DOXINATE® WITH DANTHRON IS FREQUENTLY PREFERRED IN:

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- Geriatrics
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DOXINATE®

(DIOCTYL SODIUM SULFOSUCCINATE, **LLOYD**)

THE ORIGINAL DIOCTYL SODIUM SULFOSUCCINATE FOR TREATING CONSTIPATION

DOSAGE:

ADULTS—2 or 3 soft gelatin green 60 mg. capsules daily.

INFANTS—1 or 2 cc. Doxinate Solution 5% once daily in milk, formula or fruit juice.

Danthron (1,8-dihydroxyanthraquinone) is a mild, peristaltic stimulant acting only on the large bowel.

DOSAGE:

For adults and children over 12—one or two soft gelatin brown capsules (containing Doxinate, 60 mg.; Danthron, 50 mg.) at bedtime for 2 or 3 days or until bowel movements are satisfactory.

LLOYD BROTHERS, INC. · CINCINNATI 3, OHIO

"In the interest of medicine since 1870"

but his stomach and nerves are losing to the "jitters" of spasm and irritability.

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—the antispasmodic-sedative providing therapeutic agents with the same durations of action

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LABORATORIES, INC.
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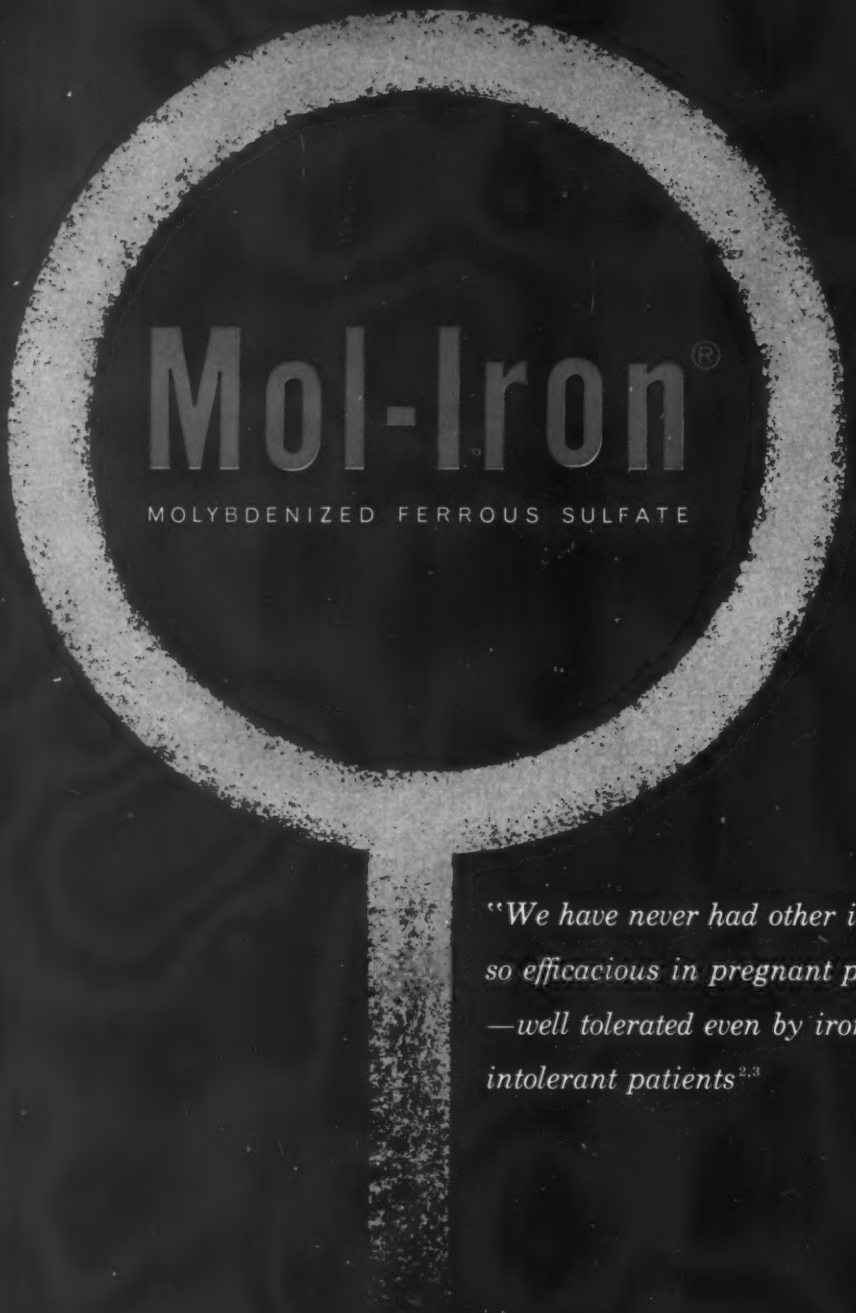
contains, per tablet or 5 cc.:
Butisol® Sodium, 10 mg.—the "daytime sedative" with little risk of accumulation[1] or development of tolerance frequently associated with the long-acting barbiturates such as phenobarbital.[2]
natural belladonna, 15 mg.—more effective than the synthetic alkaloids.
Butibel tablets...elixir

1. Maynert, E.W. and Losin, L.: J. Pharmacol. & Exper. Therap. *115*:275-282 (Nov.) 1955.
2. Butler, T.C. et al.: J. Pharmacol. & Exper. Therap. *111*: 425 (Aug.) 1954.



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AVAILABLE AS—

TABLETS • DROPS • LIQUID

1. Dieckmann, W. J., and Priddle, H. D.: Anemia of Pregnancy Treated with Molybdenum-Iron Complex, Am. J. Obst. & Gynec. 57:541, (March) 1949.
2. Neary, E. R.: Am. J. Med. Sc. 212:76 (July) 1946.
3. Kelly, H. T.: Pennsylvania M. J. 51:999 (June) 1948.

the only
prenatal supplement
with **Mol-Iron**

Gestatabs® tablets

"just 2 for 2"

—for real patient convenience

only 2 tablets a day

Available in bottles of 60 tablets

PHOSPHORUS-FREE CALCIUM
to minimize the likelihood of leg cramps

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to bolster prothrombin levels

ESSENTIAL VITAMINS
to maintain normal pregnancy

and when iron is the dominant need...

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• When the common cold and other respiratory disorders are so prevalent many doctors are giving consideration to Vitaminerals new formula VM No. 30. This formula is based on the findings of many scientists in clinical tests with vitamin C and the Citrus Bio-flavonoids in conditions of abnormal permeability and fragility. It is the precise formula used in the original research and, especially at this time of year, is being relied upon by doctors because it reflects recent scientific reports on the relationship of vitamins C, P, histamine and the common cold. VM No. 30 comes in bottled tablet form and in sani-sealed tablets. For those who prefer liquid, Vitaminerals offers VM No. L-30, the identical formula in a palatable liquid that soothes the cough-irritated throat.

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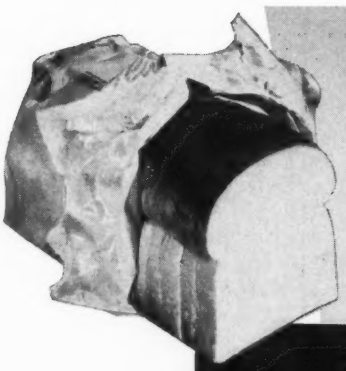

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The fat content of enriched bread approximates only 3 per cent, and its cholesterol content is negligible. This feature and, in addition, its well-balanced proportions of essential nutrients qualify enriched bread as an important constituent of low-fat diets.

Six slices of the average enriched bread, containing 4 per cent added nonfat dry milk, provide 12 grams of good quality protein (flour protein supplemented with milk protein), 0.36 mg. of thiamine, 0.26 mg. of riboflavin, 3.35 mg. of niacin, 3.5 mg. of iron, and 126 mg. of calcium—from 16 to 29 per cent of the adult patient's daily needs for each of these nutrients. Yet six slices of enriched bread supply only 19 per cent of the nutrient energy of a 2,000-calorie diet.

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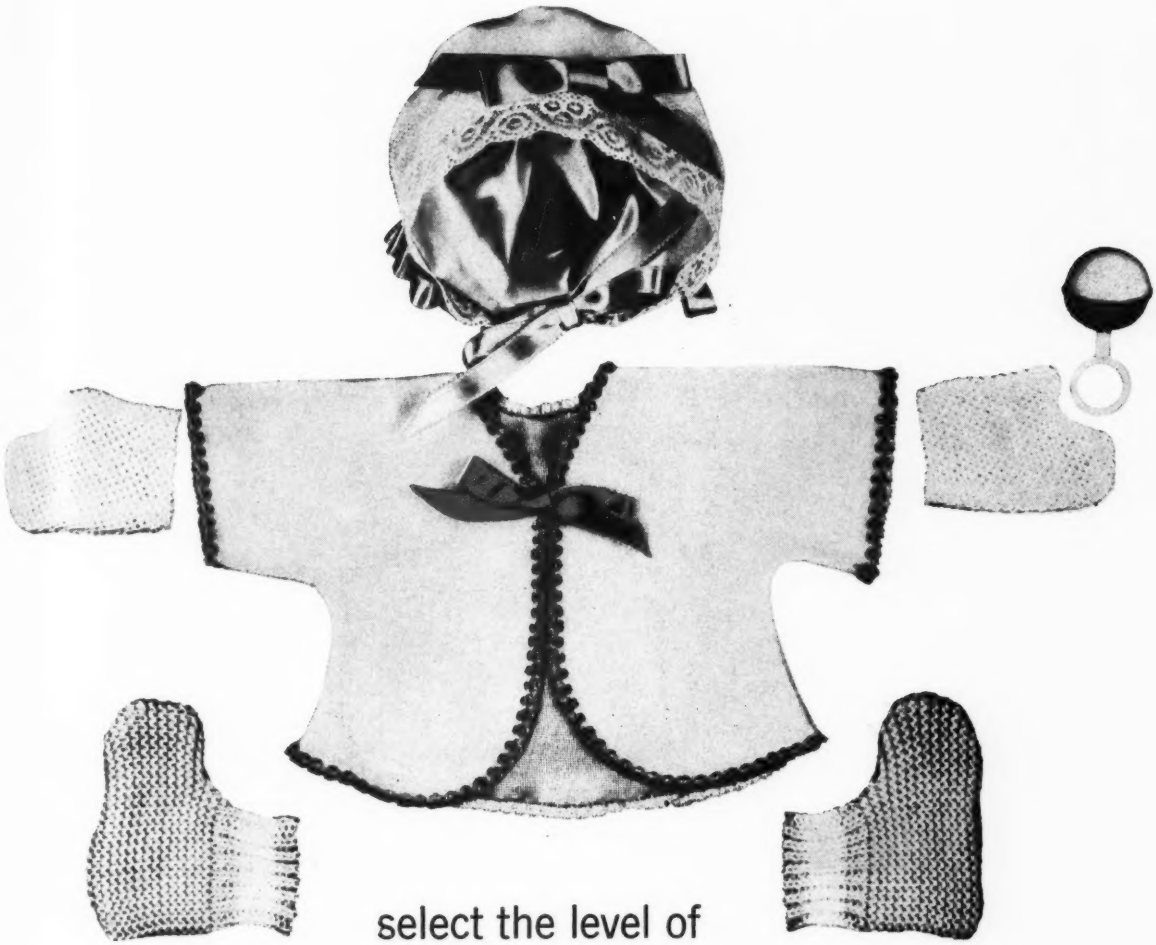

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3 basic vitamins...A, D, C

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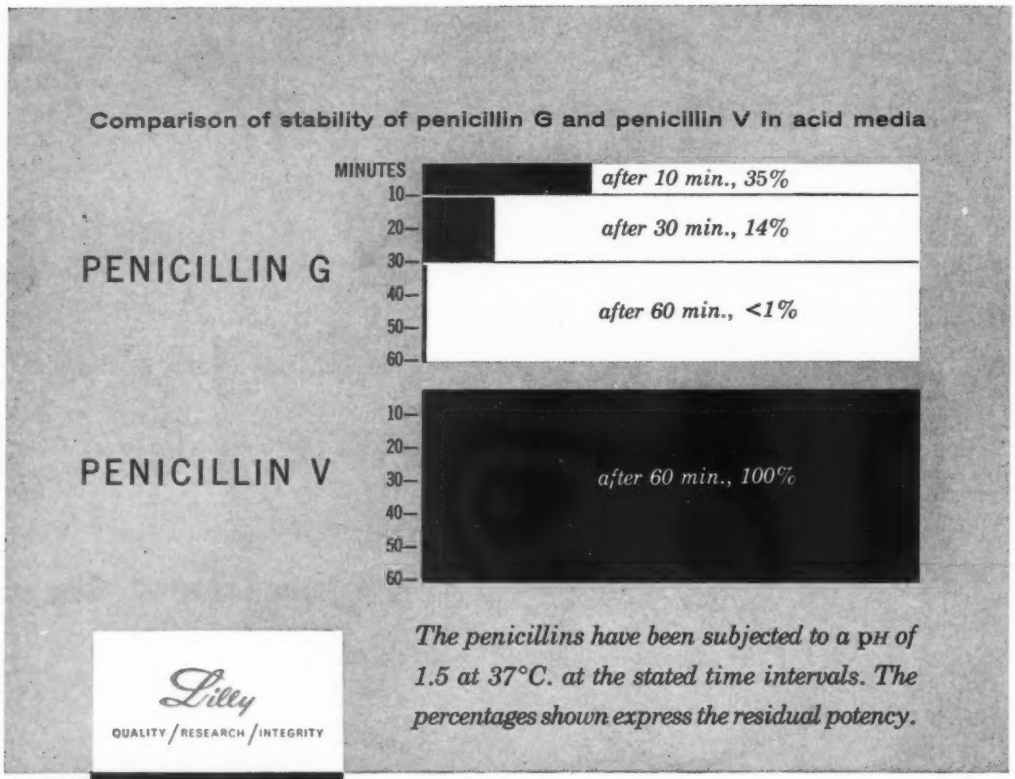
Comparison of stability of penicillin G and penicillin V in acid media
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10
20
30
40
50
60
PENICILLIN G
after 10 min., 35%
after 30 min., 14%
after 60 min., <1%
PENICILLIN V
after 60 min., 100%
The penicillins have been subjected to a pH of 1.5 at 37°C. at the stated time intervals. The percentages shown express the residual potency.
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The penicillin designed specifically for oral administration

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Dosage: 125 to 250 mg. (200,000 to 400,000 units) t.i.d.

Supplied: Pulvules—125 and 250 mg.

Pediatric suspensions—125 and 250 mg. per 5-cc. teaspoonful

Also, 'V-Cillin-Sulfa' (Penicillin V with Triple Sulfas, Lilly), tablets and pediatric suspension

'V-Cillin' is the only penicillin that passes through the stomach without significant loss of potency and is rapidly absorbed in the duodenum. Thus, 'V-Cillin' usually gives you a clinical dependability comparable to that of parenteral penicillin. In fact, the literature generally agrees that 'V-Cillin' can be effectively and safely used in many conditions previously treated parenterally.

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Conventions and meetings

Announcements

American Osteopathic Association, Sixty-First Annual Convention, Hotels Adolphus, Baker, and Statler, Dallas, Texas, July 15-19. Program Chairman, Neil R. Kitchen, 18820 Woodward Ave., Detroit.

American College of Osteopathic Obstetricians and Gynecologists, annual meeting, Bellevue-Stratford Hotel, Philadelphia, February 18-20. Program Chairman, P. J. MacGregor, Jr., 706 J. M. S. Bldg., South Bend 1, Ind. Secretary, Harold K. Morgan, Lakewood Polyclinic, 7575 W. 14th Ave., Denver 15.

American College of Osteopathic Surgeons, annual meeting, Jefferson Hotel, St. Louis, October 27-31. Program Chairman, Don E. Ranney, 793 N. Renaud, Grosse Pointe Woods 36, Mich. Executive Secretary, Orel F. Martin, Box 474, Coral Gables 34, Fla.

American Osteopathic Academy of Orthopedics, annual meeting, Jefferson Hotel, St. Louis, October 27-31. Secretary, J. Paul Leonard, 2673 W. Grand Blvd., Detroit 8.

American Osteopathic College of Anesthesiologists, annual meeting, Jefferson Hotel, St. Louis, October 27-31. Program Chairman, Lawrence Everett Giffen, 209 Monroe St., Jefferson City, Mo. Secretary, Crawford M. Esterline, Box 155, Kirksville, Mo.

American Osteopathic College of Radiology, annual meeting, Jefferson Hotel, St. Louis, October 27-31. Secretary, F. A. Turfler, Jr., South Bend Osteopathic Hospital, 118 S. William St., South Bend 2, Ind.

American Osteopathic Hospital Association, annual meeting, Jefferson Hotel, St. Louis, October 27-31. Executive Secretary, Mr. R. P. Chapman, 604 Kahl Bldg., 326 W. Third St., Davenport, Iowa.

American Osteopathic Society of Proctology, annual meeting, Hotel Statler, Detroit, April 3-5. Program Chairman, John A. Brandon, 1814 Oberlin Ave., Lorain, Ohio. Secretary, Carl S. Stillman, Jr., 3523 Fifth Ave., San Diego 3, Calif.

Arizona, annual meeting, Wigwam Hotel, Litchfield Park, April 25-28. Program Chairman, R. D. Bennett, 115 W. First St., Mesa. Secretary, Homer E. Allhouse, 2243 N. 12th St., Phoenix 22.

California, annual meeting, Hotel del Coronado, Coronado, May 15-19. Executive Secretary, Mr. Thomas C. Schumacher, 1298 Wilshire Blvd., Los Angeles 17.

Eastern Osteopathic Association, annual meeting, Hotel Statler, New York City, March 23-24. Program Chairman, Chester D. Losee, 212 Prospect St., Westfield, N.J. Secretary, Frank B. Tompkins, 309 Baltimore Life Bldg., Baltimore 1, Md.

Florida, annual meeting, Jacksonville, September 30-October 2. Program Chairman, Louis J. Larmoyeux, 124 E. Ashley St., Jacksonville 2. Secretary, Dominic Raffa, 5009 Central Ave., Tampa 3.

Georgia, annual meeting, King and Prince Hotel, St. Simons, May 9-11. Program Chairman, Walter B. Elliott, Jr., 702 Mortgage Guarantee Bldg., Atlanta 3. Secretary, Ruth McNeff Glass, 1432 Donnelly Ave., S.W., Atlanta 10.

Illinois, annual meeting, Palmer House, Chicago, April 26-28. Program Chairman, S. V. Robuck, 25 E. Washington St., Chicago 2. Executive Secretary, Mr. D. O. Durkin, Rm. 521, 53 W. Jackson Blvd., Chicago 4.

Indiana, annual meeting, Marott Hotel, Indianapolis, May 19-21. Program Cochairmen, Paul van B. Allen, 1500 N. Delaware St., Indianapolis 2, and H. E. Rinne, 519-20 Merchants Bank

1 tablet q.12 h.: to prevent angina pectoris:

Provides full 24-hour protection for 8 out of 10 angina patients: In rigorous clinical trials,[1] METAMINE SUSTAINED improved 80 (78%) of 103 patients with angina pectoris, including a group refractory to other medication.

Each METAMINE SUSTAINED tablet slowly releases 10 mg. of METAMINE, the unique, amino nitrate, to provide lasting, 12-hour protection from attacks of angina pectoris.

Simplified dosage—just 1 tablet on arising, and 1 before the evening meal.

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[1]Fuller, H. L. and Kassel, L. E.: Antibiotic Medicine and Clinical Therapy, 3:322, October 1956.

1 tablet all day
1 tablet all night

Metamine®
triethanolamine trinitrate biphosphate, LEEMING, 10 mg.
Sustained

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KONSYL is a vegetable concentrate of naturally occurring hemicelluloses. It is derived from blond psyllium seed and provides just the moist, smooth, effective bulk so essential to normal peristalsis. Its use has been shown to materially hasten the rate of improvement in patients with the irritable colon syndrome.[5] KONSYL contains 100% bulk producing material.

Furthermore, Konsyl is available in 6-ounce and 12-ounce containers at significantly lower-cost-to-patient prices. That's why we say

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1. Dolkhart, R. E., Dentler, M. & Barrow, L. L., Ill. M. J. 90:286, 1946.
2. Adler, H. F., Atkinson, A. J. & Ivy, A. C., Am. J. Digest. Dis., 8:197, 1941.
3. Wazasek, D., & Steigman, F., Am. J. Digest. Dis., 9:423, 1942.
4. Williams, R. D., & Olmsted, W. H., Ann. Int. Med., 10:717, 1936.
5. Lieberthal, M. M., Conn. State M. J., 19:86, 1955.

Formula: KONSYL contains 100% platago ovata coating.

Made by BURTON, PARSONS & COMPANY *Since 1932*
Originators of Fine Hydrophilic Colloids
WASHINGTON 9, D. C.

Bldg., Indianapolis 4. Secretary, Arabelle B. Wolf, 4840 N. Michigan Rd., Indianapolis 8.

Iowa, annual meeting, Savory Hotel, Des Moines, May 27-28. Program Chairman, R. S. Farran, Badgerow Bldg., Sioux City 9. Secretary, Mr. Herman W. Walter, 200 Walnut Bldg., Des Moines 9.

Kansas, annual meeting, Town House, Kansas City, May 4-8. Program Chairman, V. R. Cade, Cade Clinic Bldg., 816-818 Broadway, Larned. Secretary, Mr. Lloyd L. Hall, 121 E. 8th St., Topeka.

Maine, annual meeting, Samoset Hotel, Rockland, June 27-29. Professional Education Chairman, Donald P. Miller, Main St., Norridgewock. Secretary, Roswell P. Bates, 72 Main St., Orono.

Massachusetts, annual meeting, Somerset Hotel, Boston, January 19-20. Program Chairman, William A. Seeglitz, 315 Franklin St., Newton 58. Secretary, Mrs. Gladys M. Stockdale, 524 California St., Newtonville 60.

Michigan, annual meeting, Grand Rapids, September 30-October 2. Program Chairman, Harold W. Laidlaw, McCoy-Laidlaw Clinic, Bad Axe. Secretary, P. Ralph Morehouse, 214 S. Superior St., Albion.

Minnesota, annual meeting, Lowry Hotel, St. Paul, May 2-4. Program Chairman, M. Sidney Hedeen, 1595 Selby Ave., St. Paul 4. Secretary, E. R. Komarek, 301 Granite Exchange Bldg., St. Cloud.

New Jersey, annual meeting, Ritz-Carlton Hotel, Atlantic City, March 2-3. Program Chairman, Kirk L. Hilliard, 850 N. Main St., Pleasantville. Secretary, Richard F. Leedy, 38 Newton Ave., Woodbury.

New Mexico, annual meeting, Navajo Lodge, Ruidoso, May 16-18. Program Chairman, Lory Baker, 400 N. Church St., Las Cruces. Secretary, Robert E. Smith, 205 N. First, Lovington.

Northwest Osteopathic Convention, Multnomah Hotel, Portland, Oregon, June 17-20. Program Chairman, Russell F. Kenaga, 2265 W. Burnside St., Portland 5, Ore.

Ohio, annual meeting, Neil House Hotel, Columbus, May 5-8. Program Chairman, Donald Siehl, 701 Salem Ave., Dayton 6. Secretary, Mr. William S. Konold, 53 W. Third Ave., Columbus.

Ontario, annual meeting, Orillia, May 2-4. Program Chairman, C. V. Hinsperger, 806 Canada Bldg., Windsor. Secretary, A. V. DeJardine, 205 Yonge St., Toronto 1.

Oregon: See Northwest Osteopathic Convention.

Society of Divisional Secretaries, midyear meeting, A.O.A. Headquarters, Chicago, February 9-10. Program Chairman, Mr. Douglas O. Durkin, Room 521, 53 W. Jackson Blvd., Chicago 4. Secretary, Paul D. Adams, 325 E. McCarty St., Jefferson City, Mo.

South Dakota, annual meeting, Huron, June 2-3. Program Chairman, F. A. Nutter, Jr., Box 368, Beresford. Secretary, Earl W. Hewlett, 417 W. 27th St., Sioux Falls.

Tennessee, annual meeting, Graystone Hotel, Gatlinburg, April 28-May 1. Program Chairman, L. D. Elliston, 707 S. Main St., Covington. Secretary, J. M. Moore, Jr., 200 High St., Trenton.

Texas, annual meeting, Plaza Hotel, San Antonio, May 2-4. Program Chairman, Myron S. Magen, 5101 Ross Ave., Dallas 6. Secretary, Phil R. Russell, 512 Bailey St., Fort Worth 7.

Washington: See Northwest Osteopathic Convention.

West Virginia, annual meeting, Daniel Boone Hotel, Charleston, June 2-4. Program Chairman, Frank E. Pick, 4410 McCorkle Ave., S.W., South Charleston 3. Secretary, Guy E. Morris, 542 Empire Bank Bldg., Clarksburg.

Wisconsin, annual meeting, Wisconsin Hotel, Milwaukee, April 29-May 1. Program Chairman, I. J. Ansfield, 1500 E. Brady St., Milwaukee 2. Secretary, Edwin J. Elton, 1518 N. 70th St., Wauwatosa 13.

State and national boards

ARIZONA

Those interested in professional examinations should contact Russell Peterson, D.O., secretary, Osteopathic Board of Registration and Examination in Medicine and Surgery, 2747 East McDowell Road, Phoenix.

Basic science examinations March 19 at the University of Arizona, Tucson. Applications must be filed 2 weeks prior to examination. Address H. D. Rhodes, Ph.D., secretary, Basic Science Board, University of Arizona, Tucson.

COLORADO

Basic science examination March 6-7, Y.M.C.A. Bldg., E. 16th Ave. and Lincoln St., Denver. Applications must be filed by February 20. Address Esther B. Starks, D.O., secretary, Basic Science Board, 1459 Ogden St., Denver 18.

CONNECTICUT

Basic science examinations February 9. Address State Board of Healing Arts, 52 Whitney Ave., New Haven 10.

Professional examinations March 12-13. Applications must be filed by February 26. Address Frank Poglitsch, D.O., secretary, Osteopathic Examining Board, 300 Main St., New Britain.

DISTRICT OF COLUMBIA

Basic science examinations in April. Address Mr. Paul Foley, Deputy Director, Dept. of Occupations and Professions, 1740 Massachusetts Ave., N.W., Washington 6.

GEORGIA

New officers of the State Board of Osteopathic Examiners are: Harry Elkins Huff, Tifton, president; Walter L. Jones, Rome, vice-president; and Hoyt B. Trimble, Atlanta, secretary-treasurer.

ILLINOIS

Examinations January 28-31 and April 1-4 in Chicago. Address Mr. Frederic B. Selcke, Superintendent of Registration, Department of Registration and Education, State House, Springfield.

IOWA

Basic science examinations April 9 at the Capitol Bldg., Des Moines. Address Ben H. Peterson, Ph.D., secretary, Board of Basic Science Examiners, Coe College, Cedar Rapids.

KANSAS

Examinations February 14-15 at the Jayhawk Hotel, Topeka. Address C. A. Welker, D.O., secretary, Board of Osteopathic Examination and Registration, J. C. Penny Bldg., Concordia.

MICHIGAN

Basic science examinations February 8 and 9, at Detroit and Ann Arbor. Applications must be filed by January 31. Address Mrs. Anne Baker, secretary, Board of Examiners in the Basic Sciences, 116 Mason Building, Lansing.

MINNESOTA

Basic science examinations April 2-3. Address Raymond N. Bieter, M.D., secretary, Board of Examiners in the Basic Sciences, 105 Millard Hall, University of Minnesota, Minneapolis 14.

Dale Dodson, D.O., Northfield, has been appointed to the State Board of Examiners in the Basic Sciences, for a term expiring April 1, 1959. He replaces Carl E. Morrison, D.O., St. Cloud.

MONTANA

Examinations March 5. Address Asa Willard, D.O., secretary, Board of Osteopathic Examiners, Wilma Bldg., Missoula.

NEVADA

Basic science examinations April 2. Address Donald G. Cooney, Ph.D., secretary, Board of Examiners in the Basic Sciences, Box 9005, University Station, Reno.

NEW HAMPSHIRE

Examinations March 13-14. Address John S. Wheeler, M.D., secretary, Board

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Topical Salicylate Therapy

for safer, more effective relief of rheumatic pain

High concentration topical salicylate-menthol therapy (BAUME BENGUÉ) offers safe, penetrating relief of painful joints and muscles caused by overexertion.

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Menthol-induced hyperemia plus high local concentration of salicylate has been rediscovered as one of the most promptly effective remedies for rheumatoid discomfort due to exposure.

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COUGH
medications
that not only
ARE better
but
TASTE better
Robins
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1. Blanchard, K., and Ford, R. A.: Journal Lancet 74:443, 1954.
2. Blanchard, K., and Ford, R. A.: Rocky Mt. M. J. 52:278, 1955.
3. Cass, L. J., and Frederik, W. S.: Am. Pract. & Dig. Treat. 2:844, 1951.
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NEW MEXICO

Basic science examinations January 20. Address Mrs. Marguerite Cantrell, secretary, Board of Examiners in the Basic Sciences, P.O. Box 1522, Santa Fe.

PENNSYLVANIA

Members of the State Board of Osteopathic Examiners, newly organized under a new law, are: John H. Warren, D.O., Philadelphia; David Rothman, D.O., Oxford; Bennie L. Agresti, D.O., Erie; H. C. Orth, D.O., Lewistown; John W. Shirer, M.D., Pittsburgh; and Calvin M. Smyth, M.D., Abington.

RHODE ISLAND

Professional examinations April 4-5. Address Mr. Thomas B. Casey, Administrator of Professional Regulation, 366 State Office Bldg., Providence.

Basic science examinations February 13. Applications must be filed 21 days in advance. Address Mr. Casey.

TENNESSEE

Examinations in February and July at Nashville. Applications must be filed 15 days prior to examination. Address M. E. McCoy, D.O., secretary, Board of Examination and Registration for Osteopathic Physicians, 1226 Highland, Jackson.

WISCONSIN

Basic science examinations Saturday, April 6, 8:00 a.m. at Hotel Loraine, Madison. Applications must be filed by March 29. Address Mr. W. H. Barber, secretary, State Board of Examiners in the Basic Science, Ripon College, Ripon.

WYOMING

Examinations February 4. Address Franklin D. Yoder, M.D., New State Office Bldg., Cheyenne.

ALBERTA

Examinations in April. Address Mr. G. B. Taylor, Acting Registrar, Alberta Medical Board, Office of the Registrar, University of Alberta, Edmonton, Canada.

Examination by National Board

The National Board of Examiners for Osteopathic Physicians and Surgeons conducts Parts I and II of its examination on the first Thursday and Friday of each May and December at the six approved colleges. Application blanks may be obtained from the secretary or the dean of the college, and the completed application blank, together with a passport photograph and check for the parts to be taken, must be in the secretary's office by the November 1 or April 1 preceding the examination.

Examinations in Part I consist of anatomy, including histology and embryology; physiology; physiological chemistry; general pathology; and bacteriology, including parasitology and immunology.

Part II consists of examinations in surgery, including applied anatomy, surgical pathology, and surgical specialties; obstetrics and gynecology; pediatrics, neurology and psychiatry; public health, including hygiene, medical jurisprudence; osteopathic principles, therapeutics, including pharmacology and materia medica.

Part III is an oral and practical examination given under the supervision of a chief examiner who is a member of the Board and by a panel of associate examiners. Subjects covered in Part III are anatomy; physiology; pathology; osteopathic principles; therapeutics, and pharmacology; surgery; ophthalmology and otorhinolaryngology; obstetrics and gynecology; physical and clinical diagnosis; public health and communicable diseases.

These are oral examinations which the candidate may take after having satisfactorily completed the first 6 months of a 1 year internship in a hospital approved by the American Osteopathic Association for intern training. Part III is given annually at the Philadelphia, Kirksville, and Los Angeles colleges.

Eligibility requirements are as follows: Part I, satisfactory completion of the first 2 years in an approved school of osteopathy; Part II, satisfactory completion of Part I and of the first two quarters or trimesters of the senior year in an approved osteopathic college; Part III, satisfactory completion of Part II and at least 6 months of a 1-year internship approved by the American Osteopathic Association. The internship requirement does not apply to candidates who took part I prior to July, 1950.

Applications must be filed with the secretary of the Board not less than 30 days prior to the examination date. Address Paul van B. Allen, D.O., secretary, 1512 N. Delaware Street, Indianapolis 2, Indiana.

Reregistration of osteopathic licenses

January—Alberta. No reregistration. Pay $10.00 a year membership in the College of Physicians and Surgeons, Alberta, in January.

During January—Connecticut, $2.00. Address Frank Poglitsch, D.O., secretary, Osteopathic Examining Board, 300 Main St., New Britain.

During January—Minnesota, $2.00. Address Wallace F. Kreighbaum, D.O., secretary, Board of Osteopathic Examiners, 2748 Hennepin Ave., Minneapolis 2.

During January—Wisconsin, $3.00. Address Thomas W. Tormey, Jr., M.D., secretary, Board of Medical Examiners, State Office Bldg., 1 W. Wilson St., Madison.

January 31—British Columbia, amount of fee set at Annual Meeting of Council of College of Physicians and Surgeons of British Columbia. Address Lynn Gunn, M.D., 1807 W. 10th Ave., Vancouver 9.

Prior to February 1—Vermont, $3.00 residents, $2.00 non-residents. Address Charles D. Beale, D.O., Meade Bldg., Rutland.

Before March 1—Colorado, $2.00 if legal resident of Colorado; $10.00 if not legal resident of Colorado. Address Mrs. Beulah H. Hudgens, executive secretary, State Board of Medical Examiners, 831 Republic Bldg., Denver 2.

April 1—Montana, $2.00 for those in active practice, $1.00 for those inactive. Address Asa Willard, D.O., secretary, Board of Osteopathic Examiners, Wilma Bldg., Missoula.

April 1—Wyoming, $2.50. Address Franklin D. Yoder, M.D., secretary, State Board of Medical Examiners, New State Office Bldg., Cheyenne.

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*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, September 1956.

A significant factor in the aging of the population is the increase in the chances of survival. According to mortality conditions at the turn of the century, only two fifths of the newborn would reach age 65; currently the proportion exceeds two thirds. Furthermore, the expectation of life for the general population at age 65 has increased from less than 12 years in 1900-02 to about 14½ years at present. A more important factor contributing to the aging of the population is the long-term decline in the birth rate, which resulted in a steadily diminishing proportion of children in the population until 1940 and a compensating rise in the proportion of elders. However, the proportion in the older segment of the popula-

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tion has continued to increase despite the relatively high birth rates of the past decade. Lastly, our aged include a large body of foreign born who arrived three or more decades ago; in contrast, there has been only a relatively small number of young immigrants coming into our country in recent decades.

The States vary appreciably with respect to the proportion of older people in their population. In 1954, the latest year for which data are available, eight States had more than 10 percent of their people in the age bracket 65 and over; all these States were either in New England or the Midwest. At the other extreme, the States with the lowest proportion of elders were in the South or Southwest. For individual States, the proportion ranged from 11.0 percent in Iowa and New Hampshire to 5.3 percent in New Mexico. In Florida the elders constituted 9.3 percent of the population, and in California 8.6 percent, or the same as the average for the country as a whole. In 1954, New York State had nearly 1½ million people at ages 65 and over, California had little more than one million, and Pennsylvania close to a million.

A continued, rapid growth of our aged population is in prospect. The Bureau of the Census estimates that by 1975 people at ages 65 and over will number about 20½ million, or nearly 6½ million more than at present. This is a conservative estimate, since it does not allow for any improvement in mortality after 1960.

Meeting the medical needs of the large and growing population of older people in our country is a challenging problem. The incidence of chronic disease and disabling illness is highest in later life, and consequently the prevalence of these conditions increases as the proportion of older people rises. More and more, medical, surgical, and hospital facilities and services are being devoted to the health problems at the older ages. In order to stimulate interest and promote research on these problems, the American Medical Association has recently established a Committee on Aging under its Council on Medical Service.

The growing proportion of elders in the population is also accentuating the problem of widowhood. Although the average length of life has been increasing, both the number of widows at the older ages and their expected period of widowhood have likewise been rising. This paradox is explained by the fact that for a long time the gains in longevity have been more rapid for females than for males.

To help the aged meet their needs during retirement as well as the needs of their dependent survivors, private Life insurance has developed a wide variety of plans under which the family head may build up funds over his productive years.

Report on barbiturates*

Currently there is a clamor and outcry in the press about the widespread misuse of barbiturates with reports of accidental deaths and demands that these drugs be placed under strict control. This is not a new complaint. It was in response to just such a note of alarm that 13 years ago the Committee on Public Health of The New York Academy of Medicine first deliberated on the value of barbiturates, the dangers of their misuse, and proper measures for their control. Two years later it formulated a code that set the pattern of control, a pattern that has been widely adopted. Now a rising chorus of protest over the existing situation has prompted the committee to reexamine the problem of barbiturates.

DEFINITION

The barbiturates comprise a family of many chemical compounds of which bar-

*Reprinted from *Public Health Reports*, November 1956.

In view of the national interest in commerce in barbiturates, Public Health Reports reprinted from the June 1956 *Bulletin of The New York Academy of Medicine* the report of its Committee on Public Health. The report was prepared by the Subcommittee on Barbiturates: Haven Emerson, M.D., chairman, Henry Aranow, Jr., M.D., George Baehr, M.D., McKeen Cattel, M.D., Hubert S. Howe, M.D., Lawrence C. Kolb, M.D., Robert W. Laidlaw, M.D., J. Murray Steele, M.D., H. D. Kruse, M.D., secretary. It was approved by Edward J. Donovan, M.D., president of the academy.

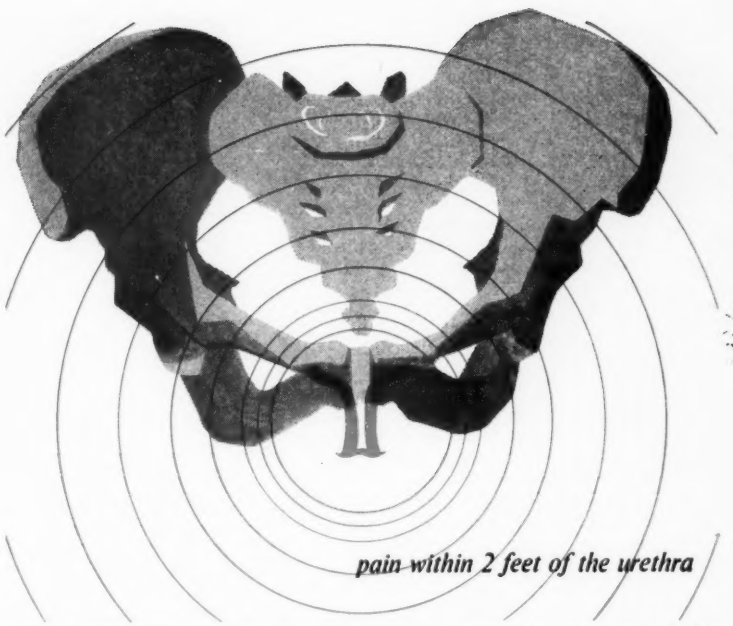
bituric acid is the parent. Some 53 years ago one of the derivatives was introduced into therapy under the name of veronal. Since then by substitution of an aliphatic or aromatic group, barbituric acid has yielded a large number of derivatives. Many have proved to be therapeutically useful. Each of these has a chemical name; in addition, it has either a popular name or a registered trade name. Since barbiturates are members of a series, all have essentially the same pharmacological and therapeutic action, but each shows an individuality. Hence, there are preparations containing two or more barbiturate derivatives; each such mixture is usually marketed under a registered proprietary name. Furthermore, pharmaceutical manufacturers have added a small amount of barbiturates to mixed preparations in which they are not the main ingredient. It is said that the number of products containing barbiturates, including single, multiple, and mixed ingredients, now exceeds 275.

USE OF BARBITURATES

The therapeutic uses of the barbiturates are several: hypnotic, sedative, anticonvulsant, anesthetic, and adjuvant with analgesics. Thus, one or more of these substances is the active principle in sleeping pills and in some of the tension-reducing preparations. They are, however, not to be confused with the newer so-called tranquilizing drugs such as rauwolfia or chlorpromazine. (Some of the newer tranquilizing drugs which are growing in popularity as substitutes for the barbiturates may have similar hazardous effects. They have not been considered in this report because their use is as yet too brief to warrant an authoritative statement.) The barbiturates are also an almost indispensable therapeutic agent for the control of convulsions in epilepsy. Each drug in the barbiturate group is marketed and dispensed as an individual preparation; some are included in multi-ingredient prescriptions and products. As a group the barbiturates are rated among the 10 most valuable drugs available to physicians.

Their value is reflected in the extent of their use. In view of their properties it is perhaps not too surprising that the production and sale figures are very high. The total national production of barbiturates has shown a steady increase since World War II. In addition to their increased use as hypnotics, it is believed that pharmaceutical manufacturers more and more are incorporating small sedative doses of barbiturates in mixed preparations. Idestrom states that in the United States in 1948 the estimated consumption was 336 tons or 24 doses of 0.10 gm. per person as compared with an estimated consumption in 1952 in Sweden of 20 tons or 29 doses of 0.10 gm. per person.

From a study in 1954, Fazekas and Koppanyi assert that between 3 and 4 billion doses of barbiturates are legally prescribed by the medical profession in the United States annually. Assistant Commissioner Trichter of the New York City Health Department estimates that 12 percent of all prescriptions compounded by pharmacists in this city contain one or another of the barbiturates. They are also dispensed on prescription on a large scale in England and Wales as was revealed by two analyses. Dunlop and associates examined 17,301 prescriptions covering the month of September 1949 and found that 1,636 or 9.4 percent were for barbiturates. In an analysis made by the Ministry of Health of 106,295 prescriptions issued during October 1954, 8.8 percent were for barbiturates or preparations containing barbiturates. The percentage of all prescriptions in which barbiturates were the sole or principal agent in 1954 was 6.4 percent. It is apparent that these highly useful drugs are widely used.



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REFERENCES: 1. Youngblood, V. H.: J. Urol. 70:926, 1953. 2. Powell, E. M., and Wattenberg, C. A.: Tr. Southcentr. Sect. Am. Urol. Ass. Oct. 17-19, 1955. 3. Tudor, J. M.: J. Tennessee M. Ass. 49:181, 1956. 4. MacLeod, P. F.; Rogers, G. S., and Anzlowar, B. R.: Internat. Rec. Med. 169:561, 1956. EATON LABORATORIES, NORWICH, N.Y

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MISUSE OF BARBITURATES

In any consideration of misuse it is necessary at the outset to examine assertions concerning their allegedly promiscuous use. Parenthetically, it should be stated that consideration of promiscuous use at this point is restricted to usage of barbiturates at their usual hypnotic or sedative level; usage of them in excessive doses will be considered separately. By promiscuous use is meant their unrestricted, indiscriminate use when they are unnecessary, ill-advised, or contraindicated. It carries the connotation of misuse.

The allegation concerning barbiturates is twofold. It has been charged that the public is obtaining barbiturates illegally and taking them without advice of a

physician; and that some physicians are prescribing barbiturates irresponsibly. The argument is based in part upon the increasing annual production of barbiturates and the calculated per capita consumption of them. Taken alone this is scarcely a reliable argument. For an increase in consumption is not necessarily prima facie evidence of misuse. It has already been noted that pharmaceutical manufacturers increasingly have incorporated small sedative doses of barbiturates in mixed preparations.

As for the allegation against physicians, it is the opinion of Fazekas and Koppanyi that the great volume and proportion of legally prescribed barbiturate preparations are mainly responsible for the widespread belief that barbiturates are used promiscuously in therapeutics. From their study on whether barbiturates were being promiscuously prescribed, they concluded that physicians were using barbiturates for disturbed states because there was no specific or an equally good therapeutic product available. In the opinion of these investigators, the physicians were using the barbiturates rationally and with full knowledge of the limitations; and they were waiting only for the advancement of medical science to provide an effective therapeutic alternative or preferably replacement. Fazekas and Koppanyi predicted that if physicians had "at their disposal truly etiotropic drugs for anxiety and tension states, they would certainly not prescribe barbiturates."

The wide prevalence of psychiatric complaints among the population must add up to a large volume of legitimate therapeutic need. In applying the proper rationale to meet this need physicians have little latitude of choice. Prescriptions of barbiturates to meet this need would not per se be promiscuous. Rather, it would be a discharge of inescapable responsibility with the most effective therapy available.

Categories of Misuse

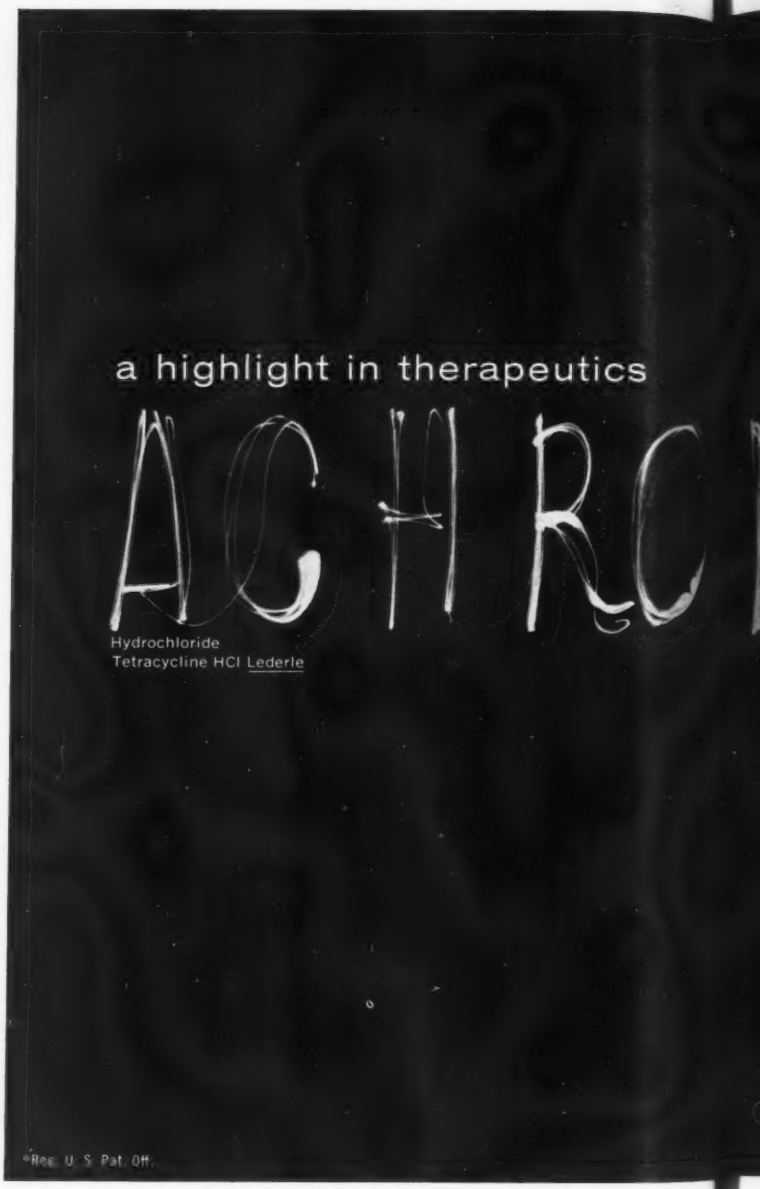
Like many things of value, barbiturates are undoubtedly misused. When there is use in excessive amounts and overdosage or in conjunction with alcohol, that indubitably is misuse. This misuse falls into five categories according to attendant circumstances.

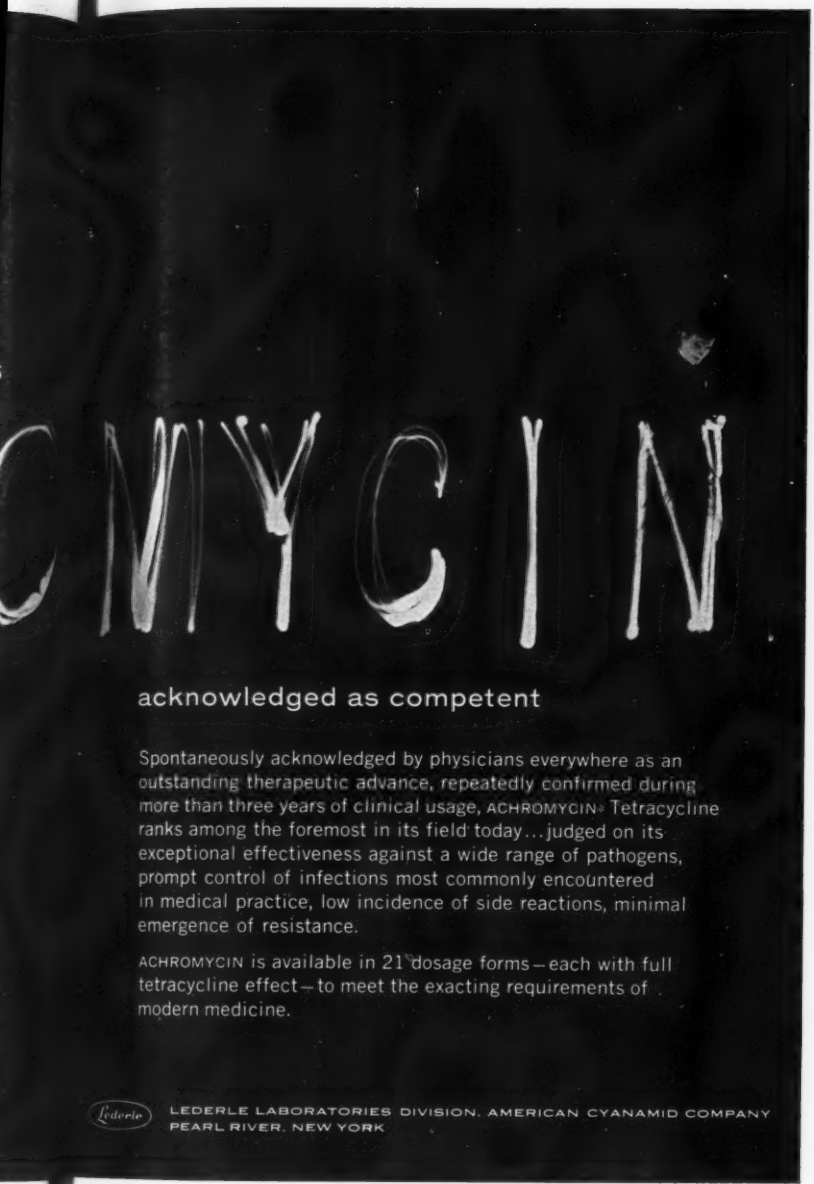
The first type of misuse is prolonged use of barbiturates in slightly excessive amounts. Some individuals may be of such unstable personality as to rely upon barbiturates to enable them to face the real or fancied tension of their daily lives. Thus, because barbiturates afford relief from anxiety, tension, and conflicts, they lend themselves to habitual self-medication at a slightly increased dosage, particularly in disturbed states for which there is no specific therapy.

Second, barbiturates may be misused as a substitute for narcotics or alcohol. Narcotic addicts who are temporarily unable to obtain the narcotic of their choice may turn to barbiturates. Alcoholics may resort to barbiturates to relieve the tremor and nervousness following a drinking episode. Another variety of misuse in this category is the ingestion of barbiturates following drinking of alcohol; or vice versa. Large doses of barbiturates may be taken inadvertently during a period of alcoholic intoxication. Then too, some individuals deliberately combine alcohol and barbiturates to obtain a brief but intense exhilaration, which is of course followed by profound intoxication and narcosis. This is a highly dangerous practice; for, as pharmacologists have repeatedly warned, these drugs in combination have a potentiating action which magnifies the effects of each.

The remaining three categories have to do with episodes of overdosage of barbiturates which occur either accidentally or intentionally. A person who wants only to obtain rest during a period of extreme stress may take an excessive amount of a barbiturate. Usually he is seeking a quick and full effect; he wants to make sure that he will fall into a deep sleep without delay. Perhaps he subscribes to the old adage that if a little is good, a lot is better. At the same time he is unfamiliar with the dangers of barbiturates. As a result he may increase the dosage and consume a quantity far in excess of that required to produce a night's sleep.

More frequently an unintentional overdose occurs because a person ingests additional doses after failure of the usual hypnotic dose to produce sleep. After a person takes one or two sleeping pills, he may enter into a twilight zone of mental confusion and forgetfulness instead of dropping off to sleep. In this

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state he forgets that he has already taken the pills; he takes more. Thus, he accidentally ingests excessive amounts of barbiturate while he is in a semi-stuporous state induced by the original dose. This sequence is known as automatism.

In addition to these episodes of overdosage which are purely accidental or inadvertent, in others the intent is suicide. Hence, barbiturates are misused as a means of self-destruction. Indeed, they are a popular choice. Yet judged by their relative effectiveness, it is a less perfect choice for the purpose than numerous other methods. Nevertheless, it represents the gravest misuse of these valuable drugs.

In sum, whatever the motive and attendant circumstances, persons may increase the amount of barbiturate ingested to the point where an episode of acute poisoning occurs. Not infrequently it terminates fatally.

Effects of Misuse

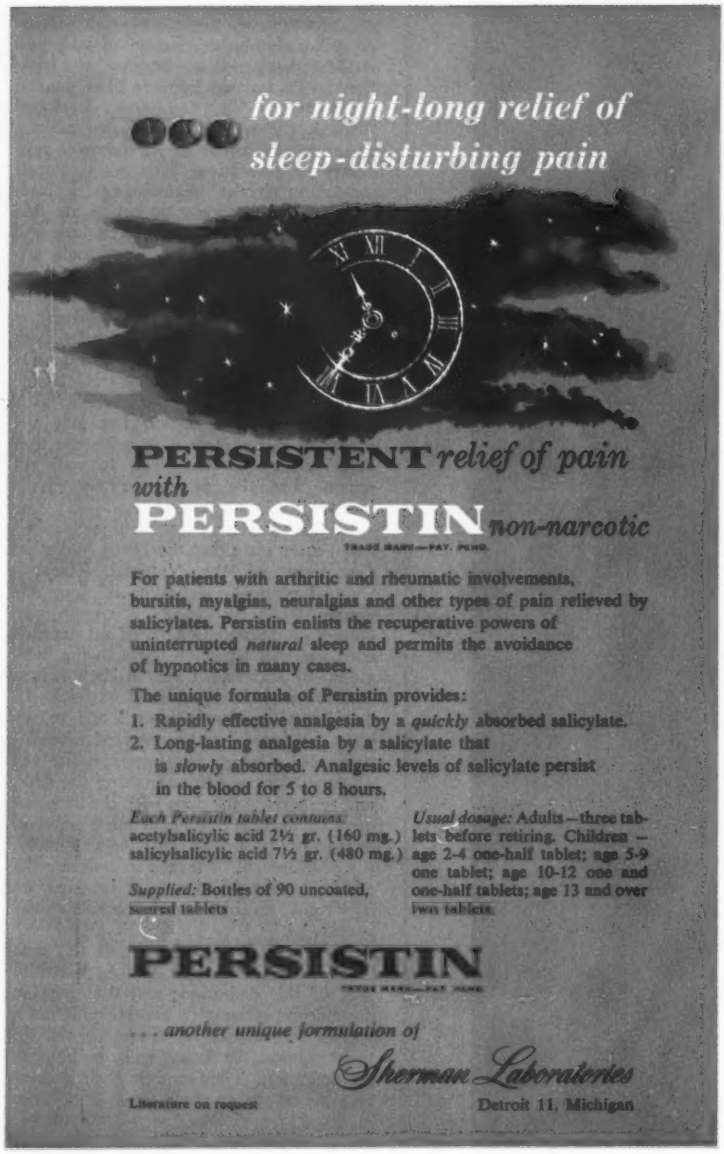
The effects of misuse of barbiturates may be considered under three headings: habituation and addiction; chronic intoxication; acute poisoning. Because barbiturates afford relief from anxiety, tension and conflicts, they lend themselves to habitual use, especially since there is no specific therapy to supersede them. There is a difference of informed opinion as to whether they should be termed addicting or habituating drugs. It may be helpful to consider a definition of terms.

To most laymen the word "addiction" simply means a bad habit. To experts it means more than that, but they differ on its definition. According to pharmacologists the significant element in addiction is dependence, either physical or emotional. Tatum and Seevers have defined addiction as "a condition developed through the effects of repeated actions of a drug such that its use becomes necessary and cessation of its action causes mental or physical disturbances." However, Isbell and Fraser do not regard this definition as acceptable to physicians and social workers who have to handle addicts. They state that the concern about addiction is "not because individuals who use drugs become dependent but because the effects of the drug are harmful both to the individual and society." This view is reflected in Vogel, Isbell, and Chapman's definition of drug addiction "as a state in which a person has lost the power of self control with reference to a drug and abuses the drug to such an extent that the person or society is harmed."

In their review of the subject, Isbell and Fraser state that the Drug Addiction Committee of the National Research Council reached a definition of drug addiction which represents a compromise between a formulation based on dependence and that based on harm to the individual or society. It is: "Addiction is a state of periodic or chronic intoxication, detrimental to the individual and to society, produced by the repeated administration of a drug. Its characteristics are a compulsion to continue taking the drug and to increase the dose with the development of psychic and, sometimes, physical dependence on the drug's effects. Finally, the development of means to continue the administration of the drug becomes an important motive in the addict's existence."

Isbell and Fraser then point out that physical dependence is not an essential part of this definition; and that psychic dependence, although a necessary, is not a specific and distinctive characteristic. In their opinion the latter adds nothing to the definition. They express their preference to return to their original position in defining addiction "as a state of periodic or chronic intoxication in which an individual compulsively abuses a drug to such an extent that the individual or society is harmed."

While agreeing that an addicting drug produces harm to an individual or society, the committee would place emphasis on dependence and, for purposes of differentiation, particularly on physical dependence. Perhaps the best way to understand addiction is to distinguish it from "habituation." "Habituation," so far as the use of drugs is concerned, signifies an emotional dependence resulting from repeated use; administration of the drug may be discontinued without disturbance of bodily functions. In contrast, "addiction" is considered to be an altered condition of the cells, tissues, and organs of the body, brought about by the continuous administration of a drug; cessation of use causes painful physical as well as mental disturbances. In brief, habituation refers to the condition in which psychological stress appears upon abstinence;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while addiction pertains to the condition in which physical signs also occur upon withdrawal.

Vogel, Isbell, and Chapman assert that barbiturates fulfill all three criteria of addiction: development of tolerance, habituation, and physical dependence. They report that when barbiturates are withdrawn abruptly from patients who have been taking 12 gr. or more daily for several weeks, convulsions and acute psychotic reactions appear. From these results they are emphatic in declaring that the derivatives of barbituric acid are addiction-producing drugs since they can bring about not only psychological but also physical dependence. It would appear therefore that physical withdrawal symptoms occur when large amounts of barbiturates have been ingested over a period of time. Under these conditions it is probably accurate to refer to barbiturate addiction.

The Expert Committee of the World Health Organization; after considering the problem, concluded "that the barbiturates must be considered drugs liable to produce addiction, [and] dangerous to public health, although differentiation among them with respect to the intensity of this liability cannot be made at this time."

After weighing all the evidence it is the opinion of the Committee on Public Health that true addiction manifested by physical dependence with withdrawal symptoms may follow prolonged high dosage of barbiturates. But, the committee emphasizes that the symptoms of addiction with barbiturates are produced only under these specific conditions; and that these conditions do not commonly occur.

Of equal if not greater concern is the question relating to potential dangers of prolonged ingestion of barbiturates in small amounts. It may be pointed out that the habitual daily use of small or moderate doses of barbiturates under medical supervision has been continued for many years without evidence of harmful effects. Only low grade tolerance is developed under such circumstances; therefore the tendency to increase dosage to obtain adequate effects is minimal. This is a sharp point of distinction between barbiturates and opiates. Although psychic dependence on these substances may develop, it is believed not to be injurious. It is like habituation to coffee or tobacco. From these observations it is the belief of the Committee on Public Health that the habitual daily use of barbiturates at therapeutic levels, even for long periods, is not perforce injurious. It should not be necessary to add that this pronouncement does not connote approval of or condone the use of barbiturates for whatever length of time without valid reason and medical supervision.

Like almost every form of medication, barbiturates when misused are capable of producing toxic effects and even death. Through regular, prolonged use of barbiturates in excessive amounts chronic intoxication develops. The symptoms of this toxic cumulative action are mainly mental, psychic, and neurological. Specifically, these manifestations are: muscular incoordination, slurred speech, inability to perform skilled acts, as well as mental symptoms, such as confusion, abnormal behavior, impaired judgment, and possibly hallucinations.

Acute intoxication results from an overdose, either accidental or suicidal, on a single occasion. It may be mild, moderate, or severe in degree depending upon whether the person remains conscious, or becomes semicomatose, or comatose. Mental and neurological disturbances are the principal symptoms. In the severe form unless prompt and energetic therapeutic measures are instituted, the outcome may be fatal. The degree of intoxication and the issue depend on the type of barbiturate, the dosage, and the patient's constitution and physical status.

Prevalence of Misuse

It is difficult to derive accurate figures on the total prevalence of misuse of barbiturates because data in one or more categories are untrustworthy or unobtainable. For example, the general public seems to be familiar with the sedative and somnifacient effects of barbiturates; but no one can state reliably how many persons are obtaining barbiturates illegally and taking them in the usual or slightly higher sedative or hypnotic dose without medical supervision. (Where rates are reported, they are based on per million population, total, male, or female.)

Addiction. Reliable data indicating the extent of true addition, that is, prolonged daily ingestion of very large quantities of barbiturates, are not available. Despite the total quantity of barbiturates used, the figure for addiction is believed to be insignificant; for, addicts are not frequently encountered. Addiction is probably limited to persons who, if the barbiturates were not available, would take excessive quantities of alcohol or other drugs.

Of 919 barbiturate poisonings in New York City in 1954, 36 were said to be in barbiturate addicts.

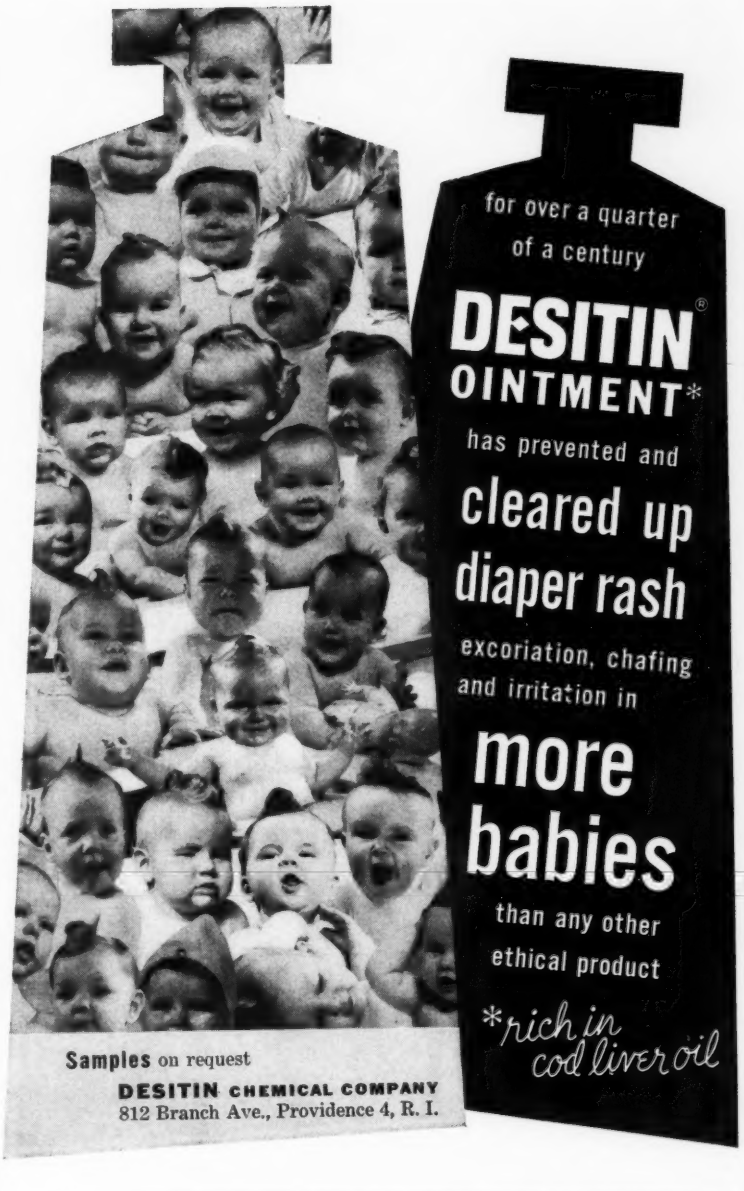
Poisonings. Due to inadequate report procedures the prevalence of chronic poisoning is not known. Data are therefore exclusively on acute poisonings. These may be conveniently classified under the headings nonfatal and fatal.

Nonfatal poisonings. Not all cases of barbiturate poisoning are fatal. The nonfatal cases may require treatment in a hospital. It is reported that in England and Wales the number of cases requiring hospital treatment has increased in recent years. In the United States about one-fifth of all instances of drug poisoning are due to barbiturates. It is estimated that 1 in every 2,000 admissions to hospitals is for acute barbiturate poisoning.

Figures on the incidence of nonfatal poisonings in New York City since 1945 are available by years. Under article 7, section 86 of the Sanitary Code of New York City it is the duty of persons in charge of hospitals and of physicians to report poisoning, whether acute or chronic, by drugs due to self-medication or on prescription. The nonfatal poisonings are reported to the bureau of preventable diseases of the New York City Department of Health and from there to the poison center of the department. The rate of total nonfatal poisonings, including both categories, has risen steadily in New York City from 1945 to 1954. Indeed, it has more than doubled over that period. The rate was 35.4 for 1945; it reached 61 in 1948; and became 97 in 1954.

Nonfatal poisonings comprise two categories: poisonings under accidental or undetermined circumstances, and unsuccessful suicidal attempts. Locket and Angus, reviewing 64 consecutive cases entering Oldchurch Hospital in England in the 4 preceding years, found that 49 at least were suicidal attempts. Moreover, of all cases of attempted suicide admitted alive during the 4 years, barbiturates were the chosen agents in more than 80 percent.

Analysis of the rates of nonfatal poisonings in New York City between 1945-54 reveals that unsuccessful suicidal attempts constituted the major category every year, sometimes by a ratio of 2:1. The rate for attempted suicide was 22.4 per million living population in 1945; it became 42 in 1948; it rose to 58 in 1950; it dropped to 37 in 1952; and returned to 57 in 1954. In contrast, the rate for accidental and undetermined nonfatal poisonings did not exceed 20 per million population until 1949; it became 30 in 1953; and 40 in 1954. It is apparent that the rate of total nonfatal poisonings has increased and that unsuccessful suicidal attempts contribute the major portion.



Fatal poisonings—total deaths. The data on deaths from barbiturate poisoning are much more reliable than those on morbidity. Figures are available for England and Wales, the United States, and New York City.

For England and Wales the rate of total deaths from barbiturate poisonings was 1.36 in 1939, and remained between the range of 1.7 to 2 until 1945 when it became 2.5. Thereafter it has increased steadily to become 13 in 1954. If the 5-year period from 1939-43 is compared with a later period of similar length, 1950-54, the average rate of fatal poisonings during the latter shows a sixfold increase, 1.8 versus 10.5.

In the United States the rate for total deaths from barbiturate poisoning was 3.23 in 1939, and remained in a range not exceeding 4.3 until 1945 when the rate was 5.7. It reach 7.6 in 1949; thereafter it declined and has remained between 6 and 6.5 from 1951 through 1954. If the average rates for two 5-year periods are compared, 1939-43 and 1950-54, it is found that the figure for the later period is slightly less than twice as high, 3.6 versus 6.5.

For New York City the rate was 5.7 in 1939; it gradually increased to 9 in 1943; it jumped to 17.7 in 1944; it reached 27.3 in 1950; it declined slightly over the next 3 years; and then rose to

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25.9 in 1954. The average rate for the period 1950-54 was 24.3; it was 3 times higher than the average rate of 7.4 for the earlier span, 1939-43.

Comparison of the three sources of data reveals that the rate for total deaths from barbiturate poisoning was higher in New York City for every year from 1939 through 1954 than were the rates for either England-Wales or the United States. From 1939 to 1949 the rate for the United States was higher than that for England-Wales. Thereafter the reverse was true. For 1954 the rate for England-Wales was about twice as high as that for the United States. The comparative order of average rates for 1950-54 was: United States 6.5; England and Wales 10.5; New York City 24.3.

For both males and females in England and Wales the rate of fatal poisonings has risen steadily from 1939 through 1954. Except for one year, the rates for females were slightly higher. The average rates for the period 1949-53 were: male, 8.1; female, 10.2. Figures on the distribution of fatal poisonings by sex in the United States are available only from 1949 through 1953. During that period the rates for both sexes declined; the rates for females were slightly higher than for males. The average rates were: male, 5.7; female 7.7.

Until 1944 the rate for fatal poisonings for males in New York City ranged between 6 and 7.7; in 1944 it jumped to 17; in 1950 it reached a high point of 27.7; and declined thereafter to a value of 23 in 1953. The rate for females was 5.3 in 1939 and increased steadily until it reached 10.7 in 1942; it jumped to 18.4 in 1944; and reached its peak of 31.3 in 1946. For the next 7 years it fluctuated rather narrowly between 20.3 and 23.1 except for the year 1950 when it was 27. Up to 1948 the female rate was higher than the male but thereafter the male has been higher. The average rates for the 5-year period 1949 through 1953 were: male, 24.4; female, 23.2.

Fatal poisonings comprise two categories: death under accidental or undetermined circumstances and suicide.

Death under accidental circumstances. For England and Wales the rate for accidental death from barbiturate poisonings was 0.3 in 1939, and rose gradually to become 4.1 in 1954. For the United States the rate for fatal barbiturate poisonings under accidental circumstances was 1.5 in 1939; it remained at approximately that level until 1945 when it reached 2.8; its high point was in 1949 with a rate of 3.1. In 1951 it declined and from 1952 to 1954 it was 2.1.

The trend of rates for New York City over the same period has been highly irregular. The rate for fatal poisonings under accidental circumstances was 2.4 in 1939; it reached three peaks of 10.1, 10, and 12 in 1946, 1950, and 1952 respectively; and then dropped precipitately to 3.1 in 1954. For each of the three census areas the average rate of the period 1939-43 compares with that of 1950-54 as follows: England and Wales, 0.74 to 3.34; United States, 1.65 to 2.27; New York City, 3.1 to 8.2. It may be seen that in England and Wales the rate increased almost fivefold; in the United States, 1½ times; and in New York City 2½ times.

Comparing the three sources of data over the years 1939 through 1954 the rates were highest in New York City. Up to 1950 the rates were higher and thereafter lower for the United States than for England and Wales.

The sex distribution of rates for fatal barbiturate poisoning under accidental circumstances in the data of England and Wales shows a higher figure for females for all except 4 of the 16 years. In 1939 the rate was 0.2 for males, 0.5 for females; in 1954, 3.2 for males and 5.1 for females. The average rates for the period 1949-53 were: male, 2.5; female, 3.3. During that period in the United States the rates for both sexes declined. In 1949 they were 2.9 for males and 3.4 for females; in 1953 they were 1.9 for males and 2.3 for females.

For New York City from 1939 through 1943, the rate for males fluctuated narrowly between 2.5 and 3; it became 6.6 in 1944, and from 1946 through 1953 it was within the range 7.7 to 9 except for 1950 when it was 11 and 1952 when it was 11.5. The rate for females from 1939 through 1953 had a general trend upward but it fluctuated with peaks at several points. From 1939 through 1941 it did not exceed 2.9; over the next 3 years it ranged between 4.4 and 5.4; it had peaks of 11.8 in 1946, 9.1 in 1950, and 12.5 in 1952; then dropped to 8.4 in 1953. The male rate was in excess of the female rate for 10 of the 16 years, but the course was irregular. The averages for

the period 1949 to 1953 were: male, 9.5; female, 8.6.

From 1918 to 1930 accidental and undetermined fatal poisonings from morphine exceeded in absolute numbers those from barbiturates. After that period a reversal in the ratio occurred. For example, in 1922 the ratio was 5:1 with morphine predominant. In 1954 the ratio was likewise 5:1 but barbiturates were predominant.

Deaths from suicide by barbiturates. In England-Wales during the period from 1939 through 1954, the suicide rate by all methods tended to fluctuate within a narrow range without showing a definite upward or downward trend. The rate for suicide from barbiturate poisoning, however, after having remained fairly uniform up to 1945, then underwent a rapid rise. Starting at 1 in 1939, the rate became 1.4 in 1945 and reached 8.8 in 1954. If the 5-year period from 1939 through 1943 be compared with a later period of similar length, 1950 through 1954, the average rate of deaths by suicide increased sevenfold, from 1 to 7.1 per million.

In the United States the suicide rate from barbiturate poisoning fluctuated from 1.6 to 2.6 from 1939 to 1944, inclusive; thereafter it rose steadily to reach a level of 4.5 during 1949 and 1950; it declined slightly during the next 3 years and then moved upward to 4.4 in 1954. The average rate for 1950-54 was double that for 1939-43; 4.2 compared with 2.

In New York City from 1939 through 1943, the rate for suicide by barbiturate fluctuated narrowly between 3.2 and 5; it jumped to 12 in 1944 and moved rather unevenly to reach 22.8 in 1954. The average rate for 1950 through 1954 was almost 4 times that for 1939 through 1943; 16.1 as against 4.3 per million.

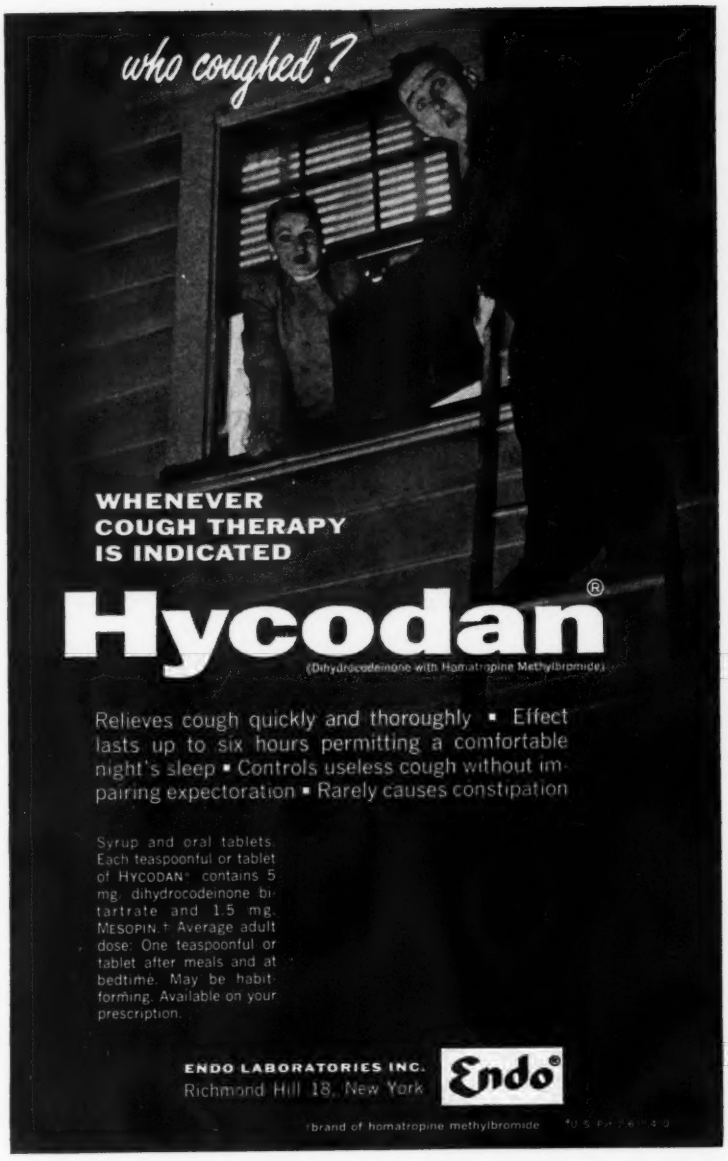
Upon comparing the three sources of data over the 16-year period 1939 through 1954, the rates are found to be in the following ascending order: the United States, England-Wales, New York City. For the last 5 years of that period the average rate for England-Wales has been 1.7 times that for the United States; that for New York City has been 2.2 times that for England-Wales and 3.8 times that for the United States. In 1939 Hambourger noted that in the United States the incidence of suicides was nearly twice as high in large cities as in the whole Nation.

The sex distribution on the suicide rate by barbiturate poisoning for England-Wales shows that for the period 1939-54 the rates for female suicides have with the exception of 1 year been higher than those for the males. The average rates from 1949 through 1953 were: males, 5.6; females, 6.9. Contrastingly, when total suicide rates by all methods are considered, the male rates have been consistently in excess of the female. From 1949 through 1953 in the United States the rates for barbiturate suicides for the females were consistently slightly higher than for the males. The averages were: males, 3.4; females, 5. The distribution by sex of the suicide rate from barbiturate poisoning in New York City from 1939 through 1953 does not show a consistent trend. The averages for the period 1949 to 1953 were: male, 14.9; female, 14.6.

From a study of the England-Wales data Brooke found that the increase in suicide rates from barbiturate poisoning from 1942 to 1954, inclusive, was more pronounced at ages 45 and upwards. In the age group 45-64 the rates for 3 years by sexes were: 1942, males, 1.6, females, 1.5; 1948, males, 7.3, females, 8.6; 1954, males, 14.9, females, 18.1. The rates in the age group 65 and over were: 1942, males, 0.6, females, 0.4; 1948, males, 5.1, females, 6.3; 1954, males, 12.8, females, 24.4. It was remarked that it was in these age groups that one would expect to find most of the cases of depression and insomnia for which barbiturates might be prescribed.

The distribution of the death rate from barbiturate poisoning on the basis of attending circumstances yields striking results. Of the average death rates from barbiturate poisoning during 1950 to 1954, inclusive, in England and Wales, the United States, and New York City, the percentages due to suicide were respectively: 67.6, 64.6, and 66.2. Thus in all three areas suicides account for about two-thirds of the deaths from barbiturate poisoning.

From the England-Wales experience, Brooke commented that a preference has been shown lately for using barbiturates as suicidal agents rather than some other lethal means. This is likewise true in New York City where of recent years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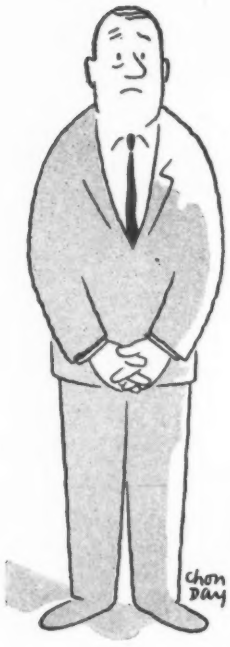

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barbiturates have become the method of choice for suicide.

Total poisonings, nonfatal and fatal. From the data on total poisonings in New York City, both fatal and nonfatal, from 1945 to 1954 inclusive, it is found that the rate was 57.6 in 1945; it increased steadily until it reached 111.1 in 1950; for the next 3 years it was below 100; but in 1954 it reached the peak of 123.3 per million living persons. The rate for 1954 was more than twice that of 1945. Of 491 cases of barbiturate poisoning in New York City studied by occupation, 40 percent were in housewives, theatrical performers, clerks, unemployed and factory workers with housewives leading all others combined in this group by almost 2:1.

The total rate may be separated into two categories: nonfatal and fatal poisonings under accidental and undetermined circumstances; attempted suicide and suicide. It is interesting to examine the composition of this total rate to ascertain the trend and proportion of each component.

Nonfatal and fatal poisonings under accidental circumstances. Barbiturate poisonings under accidental circumstances, both nonfatal and fatal, in New York City have shown an upward trend with some fluctuation over the 10-year period 1945-54. The rate in 1945 was 21.4; in 1954, 43.4. Thus, over this span, the rate has more than doubled.

Attempted suicide and suicide. The rate for attempted suicide and suicide from barbiturate poisoning in New York City was 36.2 in 1945; it increased steadily to reach 75.7 in 1950; it declined during the next 2 years; and then resumed its climb to reach 79.8 in 1954. Here again the rate over the 10-year span has more than doubled.

For every year from 1945 through 1954, the rate for combined suicidal attempts and suicide was greater than that for combined nonfatal and fatal poisonings under accidental circumstances. In four of the years the rate was more than twice as high for attempted suicide and suicide than it was for poisonings under the accidental circumstances. Over the 5-year period, 1950-54, almost two-thirds of the barbiturate poisonings, both fatal and nonfatal, were by self-destructive intent rather than by accident.

Source of Supply

It is abundantly clear that there has been an increase in the use of barbiturates; it is equally apparent that it has been accompanied by an increase in the misuse of them. But there is sharp difference of opinion over the source of supply which contributed to the misuse. It is convenient to consider this issue over the source under the headings: misuse of a prescription, and misuse without a prescription.

Misuse of prescription. To be considered under this topic is the charge that many of the prescriptions for barbiturates are unwarranted, ill-advised, or contraindicated. This point has already been discussed under promiscuous use. The extent to which prescriptions include barbiturates was also cited there. It has been pointed out that from such information as is available the physician is prescribing barbiturates justifiably for symptomatic relief in patients who have actual complaints, and that if specific remedies were available he would gladly turn to them.

Sleeplessness and tension are probably the two most frequent complaints for which the physician prescribes barbiturates. Locket and Angus report that in 62 out of 64 cases of barbiturate poisoning, the barbiturate was prescribed for the patient by his medical practitioner; and in more than 90 percent it was given for insomnia either alone or as the major complaint. Certainly such a therapeutic measure by a physician is neither irrational nor unwarranted. On the contrary, the physician is performing his professional duties by the best method available to him.

Another part of the same charge concerning prescriptions for barbiturates is based on their being a source of supply for suicides. Of the 64 patients with barbiturate poisoning reported by Locket and Angus, 49 were suicidal attempts; 9 had made one or more previous attempts. Nineteen were diagnosed as having a severe depressive state; 12 had severe social and domestic disturbances. Some of the patients had previously been in mental hospitals. All had obtained barbiturates by prescription. On studying the source of supply in 718 cases of barbiturate poisoning in New York City, Trichter

found 52 percent had obtained the barbiturate on prescription from a physician.

In these instances, critics question whether the prescriptions for barbiturates were not ill-advised and contraindicated. The inference is that the physician may have exercised poor judgment and failed to establish adequate precautions. A fair, pertinent, and significant question is: What would have happened to patients who committed suicide by a barbiturate if the physician had not prescribed it? It is not improbable that they would have obtained it from another source or would have chosen another means of self-destruction.

This opens up the entire subject of suicides, not just those from barbiturates. It is beyond the scope of this report to go into that subject in all its ramifications. But for present purposes it should be stated that some patients may give no indication of contemplated self-destruction. Furthermore, when patients issue threats or declare intentions, they seldom utter them in the presence of the physician, and the family either dismisses them or fails to transmit the information. Consequently, all too frequently the physician is not alerted to the possibility of suicide. Moreover, not all persons who issue threats carry them out. Thus it is not easy to reach a decision about the probability of suicide in a patient. Nor is the course of preventive action simple and unobstructed. The patient, or the family, or both may resist recommendations of supervision and institutionalization. What is virtually demanded is an infallible method of detecting prospective suicides and of thwarting their plans, often without recourse to hospitalization. This, the physician does not have. Yet he must try to bring relief to patients from their complaints. When the situation is viewed in its broad frame, it is at least an open question whether the physician's prescription for a barbiturate to relieve insomnia, anxiety, or tension is ill-advised or contraindicated on the grounds that the patient might commit suicide.

The second type of alleged misuse of prescriptions for barbiturates is the charge that the therapeutic prescription from the physician is very often for amounts beyond the immediate need of the patient. It is probably true that in an attempt to relieve the patient of expenditure of time and money in repeated office visits, the physician may issue prescriptions for barbiturates in excess of the patient's immediate need. Unfortunately, some patients either cannot or will not exercise due judgment in taking the medication as directed; some may save their pills for suicidal purposes. The *Lancet* has reported on two persons who committed suicide, both of whom had been given a fortnight's supply of barbiturates. One had received 72 tablets 10 days before his death, of which only 4 remained. There are no data to indicate the frequency with which physicians prescribe barbiturates in unreasonably generous amounts.

As a third type of misuse of prescriptions it is said that pharmacists and physicians collaborate in dispensing barbiturates indiscriminately but technically in a legal manner. It is asserted that the pharmacists sell barbiturates to persons with no prescription at the time of sale but subsequently the transaction is covered by a collaborating physician who provides a prescription without seeing the patient.

In the fourth type of misuse of prescriptions, the pharmacist is alleged to dispense barbiturates beyond the amount specified in the prescription. Commenting on the seeming unreasonableness of having to return later for an additional supply, the customer asks whether a greater amount than specified in the prescription can be sold. It is conceivable that some pharmacists may yield to accommodating the customer by meeting his request.

At present there are no figures to indicate the number of instances in which these various types of misuse of prescription occur. By some there is said to be flagrant abuse and that it constitutes a considerable source of supply for potential misuse. Others regard this source of supply as negligible.

Without a prescription. In considering source of supply there is another category comprising the various ways in which barbiturates are obtained without a prescription. Three different types of procedure fall under this heading. In the first, the retail pharmacist is said to dispense barbiturates without a prescription. Where there are legal provisions which require the pharmacist to keep records on the purchase and distri-

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1. Bradley, J. E.: Mod. Med. 20:71, No. 20, 1952.

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bution of barbiturates, these violations are detectable and subject to prosecution. However, the inadequacy of enforcement even in these areas makes the figures on violations extremely unreliable.

The second source of supply without a prescription is from friends and neighbors who usually act from a motive of helpfulness. When a person complains of insomnia or anxiety, a well-intentioned friend with a similar complaint may provide barbiturates out of his supply.

The third source of supply of barbiturates, it is asserted, is illegal traffic with a black market. By some this is regarded to be the major source of supply of barbiturates and responsible for most of the potentialities of misuse. It is alleged to be a vast, gigantic operation. In an article on the subject the *New York World-Telegram and Sun* detailed the four channels which operate outside the usual pharmaceutical routes. First in the illicit trade are export-import firms which obtain their supply from the wholesale druggist. All that the export-import firm needs is a letterhead and a telephone number; for these may be the only credentials on which the wholesaler checks. A second type of illicit operation is by deception and misrepresentation in which supply houses and even pharmaceutical houses are the victims. A person interested in peddling barbiturates at a fantastic profit has a fictitious physician's letterhead or prescription blank printed and on the basis of it places orders with supply houses. The third source of supply which is said to fall into illegal channels is samples for physicians. Reputedly there are 200 different brands of sleeping pills and 1,300 drug houses compound and package one or more preparations. In order to encourage the sales of their products, these companies regularly send samples to physicians. A widespread amount of these products is said to contribute to the vast illicit traffic.

On the other hand, this image of a vast illegal traffic is not shared by all authorities. Some assert that there is no evidence of production of barbiturates in the United States designed exclusively for illicit sale. They add that although the extent of diversion of barbiturates from legitimate to illegitimate channels is unknown, the infrequency of charges of this practice would lead to the belief that it is comparatively small.

To be concluded in February JOURNAL

Public health begins in the family*

By Halbert L. Dunn, M.D., and Mort Gilbert†

The family, as the most important institution in society,[1] is intensively studied by sociologists and anthropologists. It is seldom studied by public health agencies, and it is almost entirely outside the current framework of vital and health statistics.

Births, deaths, diseases, marriages, and divorces are generally reported as events occurring to individuals. Our routine statistics tell us next to nothing about the family setting or family situation of these individuals or about the role of the family in health and disease. Although information of this type is admittedly difficult and perhaps impossible to derive from routine records, it is quite feasible to collect routine data on the "universe" of American families. The factual background would provide a base for specialized sample studies.

In this paper we will suggest, on the basis of existing statistical mechanisms, some of the ways in which public health agencies might proceed to collect usable data on families as well as on individuals. This of course raises a larger question, which we will attempt to explore first: What does the family have to do with public health?

With some 40 million families in this country—the number depends on how family is defined—most of us have first-hand knowledge of only a few. Nearly everybody defines the family differently and holds strong, individual opinions on its character. High divorce rates, disper-

*Reprinted from *Public Health Reports,* October 1956.

†Dr. Dunn is chief of the National Office of Vital Statistics, Public Health Service, and Mr. Gilbert is publications officer. Dr. Dunn presented a slightly longer version of their paper at the meeting of the Southern Branch of the American Public Health Association at Tulsa, Okla., April 4-6, 1956.

sion and mobility of families, changes in moral codes and in occupation patterns, and, until the 1940's, falling birth rates had convinced many that the family as an institution was crumbling. The consensus of modern studies is that the family is going through a profound transition but that it shows no signs of leaving the social scene.

OVER THE PAST CENTURY

To gain perspective on the structure and functions of today's family, it may be helpful to compare it with the American family of a century ago. Ignoring cultural variations and concentrating on the typical American family, we have surveyed the extensive literature of family sociology, starting with Ogburn's classic analysis, "The Family and Its Functions",[3] and including many of the more recent works. Although interpretations and emphases are controversial because nearly all aspects of the family need more intensive research, most students of the family appear to agree that the following changes and effects between 1850 and 1950 have been significant.

The family has shrunk in size.

Today's typical family has fewer children and is limited to two generations, parents and minor children. What sociologists call the "extended family"—several generations living near together and bound by close ties—has given way to the "nuclear" family of parents and minor children, who live apart from other kin and keep in touch largely through Christmas cards and occasional visits. As children mature, they leave the parental home to form separate nuclear families of their own, in a continual fragmenting process.

Today's family is mobile.

In this moving van era, a high proportion of families pick up and move to a new community, away from former friends and relatives, to take advantage of new job opportunities.

Dependent aged parents are now less likely to be supported by their grown children.

Rejection or isolation of the aged, linked in part to the modern family structure and functions,[3] has contributed to a major health problem. Many of the ills of the aged (for example, much of the so-called senile dementia) flow not only from organic aging but also from roles of social isolation dictated by family, cultural, and economic rejection.[4a] From a public health viewpoint, it is important to investigate the ways in which the changing family, among other forces in the social environment, has affected the aged.

The production of most goods and services has passed from the home to the factory and to service industries.

In 1949 for the first time the number of wives employed outside the home exceeded the number of employed single women. Women in the home perform fewer economic functions: They no longer preserve great quantities of food, make the family's clothing, or cultivate large gardens.[5] The typical family of a century ago was rural and a major productive unit. Wives were valued in proportion to their economic contribution, which in large part determined the family's status. Children were valued as producers. The change in the family as an economic team, today less frequently operating a farm or family business, is widely believed to be a contributing factor to its shrinkage in size and its relative instability. For the most part, only outside wage earners now make a direct contribution to the family's income although wives and children still may perform economic services at home.

The family's formal control over the decisions of its members is much less than in past years.

The patriarchal figure, except in a few subcultures, has receded into myth; nowadays, grown children tend independently to choose careers, mates, and neighborhoods. Much of the family's former recreational, protective, and related functions have been transferred to community agencies, or they are purchased as services. Not all families and not all members of the family accept the changes equally or necessarily integrate them into their attitudes and emotions. Emotional conflict or deprivation often accompanies such a transformation, with implications for individual and public health.

The divorce rate, though down somewhat from its prewar peak, is relatively high as compared with levels of 1850 or 1900.

The future divorce rate will be affected by probable continuation of past changes in the family which have tended

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1. Oil Paint and Drug Reporter, April 30, 1956.

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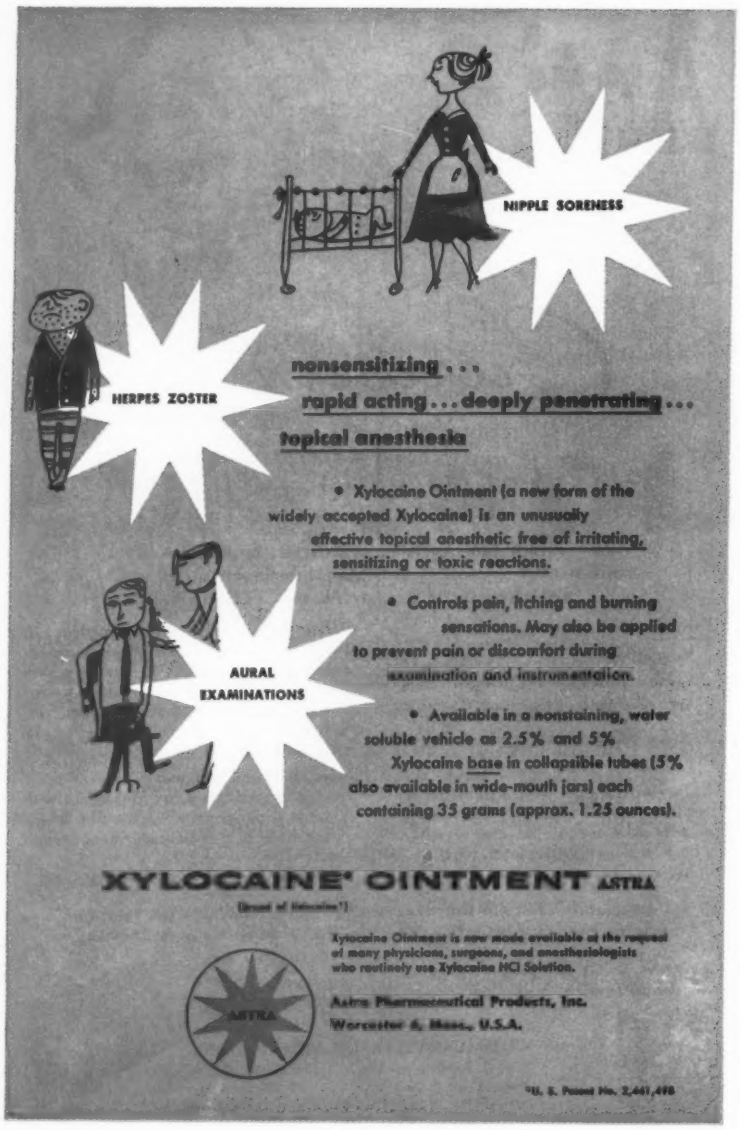
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to weaken its stability.[8a] Most of the evidence suggests that divorce is relatively more frequent in families with fewer children although we do not know to what extent children are a deterrent to divorce.[7] (The past and present extent of desertions—the "poor man's divorce"—is unknown.) With the decline of the extended family and the anonymity of the urban family, particularly in a new community, there is less pressure by relatives and friends to keep the family together. The reduction of the family's economic functions diminishes the material dependence of the marriage partners on each other.

THE IRREDUCIBLE FUNCTIONS

In view of the major changes and loss of functions, does the family still serve purposes of sufficient importance to assure its survival? The available data, fragmentary as they are, leave no doubt as to the affirmative answer. Marriage is more popular in the United States than ever: People now marry at a considerably younger age than, for example, in 1890; a much larger proportion of men and women are married today than two generations ago, and, though divorce rates are high, the remarriage rate is also high.

For the family to lose many of its traditional functions but still to become personally important to more people than ever before would seem to present a paradox. Parsons and Bales[8a] in a recent study of family structure in the light of group interaction theory, resolve it this way:

"The family has become *a more specialized agency than before,* probably more specialized than it has been in any previously known society. This represents a decline of *certain* features which traditionally have been associated with families; but whether it represents a 'decline of the family' in a more general sense is another matter; we think not. . . . The family is not in any general sense less important, because the society is dependent *more* exclusively on it for the performance of *certain* of its vital functions."

These remaining vital functions include the rearing of children and the stabilization of the adult personality. Each is basic and irreducible, and in our culture it is difficult to imagine how they could be transferred to any other agency. Since the family is indispensable for bringing up the child and providing an emotional setting for most adult personalities, its optimum performance could avert many of the strains and maladjustments that now require pediatric, general medical, and psychiatric service.

THE REARING OF CHILDREN

The newborn infant is without language, habits, customs, moral values, skills, or differentiated patterns of emotional expectation and response.[9,10] It is the family's function, particularly during infancy and the 6 early "golden years" of personality development, to transform the child into a social creature who is at home in the culture, and who carries and acts out the culture patterns without undue strain. The family has been variously called the cradle of the personality, the nursery of human nature, the porous buffer that lets the child meet experience as he can assimilate it, and that protects him from parts of the environment damaging to him if encountered too soon.[6b]

It is in the family that the child acquires the basic patterns of living—everything from table manners to ethical values. He learns to look for certain types of emotional response from others, to strive for various types of approved experience, to avoid experience that brings him pain and disapproval. Interacting with his family, learning how to win acceptance and avoid rejection in this small world, he forms behavior patterns, attitudes, and even deep-seated emotional reactions that will profoundly affect his character and personality throughout life.

The family experience begins to provide the child with a usable set of responses, attitudes, and habits that will later enable him to function as an independent adult in society. Without this foundation, human behavior would be totally unpredictable, and even an uncomplicated social structure would be unworkable.[12a] But the family, in its infinite variety, does more than this. No child-rearing family is society in miniature, but a unique group that is easy to differentiate from any other group.

Children in a family setting acquire not only the generalized patterns of the culture but also a unique interpretation of the parents' subculture. Although all

children of the same generation in a society develop much the same kind of human nature, each child is somewhat different from the products of other families. Thus the role of the family is not only to nurture a new generation that fits into the society but also to provide the great variety of personalities that society needs.[8b]

Infants and small children in order to thrive apparently need personal, adult response over and above the satisfaction of hunger and other physiological needs. The high death rate that prevailed in even the most sanitary foundling institutions and the host of studies demonstrating damage in institutionalized children are often cited as evidence of the child's need for personal attention.[12] This is a principal reason that foundings and young orphans are placed in foster families as quickly as possible: Even a poor family generally does better by the child than a scientific regimen without personal interest.

But, as the psychologist John Dollard has remarked, "domestication" of the child "is without exception a process attended by conflict and strain."[13] Though the family is the best source of healthy, well-adjusted children, it is also the source of cases that crowd outpatient and child guidance clinics. This is not the place to catalog child ailments that have their principal genesis in family maladjustments. A vast literature of psychopathology deals with the pathetic results of parental overprotection or rejection; of prolonged mother-child separation; of hostile, overpunishing, or hypercritical parents; of abnormal sibling rivalry; of homes with continuous tension and discord; and sometimes of homes broken by divorce, desertion, or death. Public health is interested in the family if for no other reason than to investigate the etiology and prevention of a wide range of childhood ills.

Though the American family today is most likely to be small and urban, the dominant ideal still clings to rural ways and large kinship. The American family concept has never adjusted to the facts of city life. Many people have not yet learned to live in the modern family, and this lag has contributed to family ill health. In the small, isolated family unit, every relationship is intensified and more continuous.[14] A child slighted by his mother cannot seek or expect comfort from his aunt if the aunt lives in another city. Bossard makes this point:[15]

"It is the consensus that many Americans suffer from a sense of insecurity, and there can be little doubt that this is in part a heritage of the immediate family form. The very size of the family unit is important to the child in this respect for the same reason that the size of the ledge from which we view the precipice below affects our sense of security. The American child who lives and matures in a father-mother-child family unit stands on a very narrow family platform, even if it is in no way imperiled. To this is added the constant danger for the child that the few persons he must rely on may falter or fail."

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Despite vast clinical experience with psychosomatic illness, despite millions of hours devoted to the recall of childhood traumas, there still is no agreement on the role of childhood experience in the development of health or sickness in adults. Many cases of the so-called "maladaptive reactions" of adults—the chronic fatigue or neurasthenic syndromes, the organ neuroses such as peptic ulcer and colitis, the disabling hysterias, the anxiety disorders, and the other psychophysiological ills—have been traced (to the satisfaction of most psychiatrists and clinical psychologists) to inappropriate patterns learned too rigidly in childhood.[16-18] Wartime evidence indicated that even the strong personality has a breaking point under sufficient traumatic stress; psychological disorder in adults does not necessarily stem from childhood maladjustment.[19] Though the evidence is mixed, the family of childhood undoubtedly affects adaptation to stress in adult life. Whether we habitually react to stress or frustration by withdrawal, aggression, escape in fantasy or functional illness is often a reflection or continuation of fundamental patterns acquired in early life.

THE ADULT PERSONALITY

Emotional security in our culture is based mainly on assurances of affection and intimate companionship with other individuals. Human nature has a basic need for favorable emotional response from others.[13b] No one outgrows it, and most suffer unhappiness and psychic, even physical, ills without it. This brings us

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to the other major function of the family: the stabilization of the adult personality.

The individual in an urbanized culture is often isolated and largely anonymous. He may be separated from kin and from most of his old, intimate friends. He makes new friends but in relatively formal relationships. Winch refers to the prevalent feeling of loneliness, to "the separation anxiety" that is apparently characteristic of today's society.[20] For many individuals, the family has survived as the only remaining primary group, which Murphy defines as "the face-to-face world, the world of tenderness and immediacy, the world of security."[4c] Except for the family, our lives are now spent mostly in secondary groups—with associates on the job, in trade union or professional meetings, in fraternal or political organizations. We use these for many purposes, but they cannot meet our deep-seated need for love and emotional security. In this respect the family has become much more significant, and this is perhaps an important reason for its persistent strength.

Shurtleff has pointed to associations between marital status and mortality.[21,22] Taking the 1949-51 death rates of married men as equal to the index 100, Shurtleff found that the age-adjusted rate for single men was 163. For widowers it was 185, and for divorced men 207—more than twice as high as for married men. For women, the comparable index figures were: married women, 100; single women, 124; widows, 155; and divorcees, 155.

The figures themselves do not indicate whether marriage keeps people well or whether people who are well tend to marry and stay married. But various students of divorce, particularly the late sociologist Willard Waller, have likened the traumatic effects of separation to those of bereavement. They speak of the "terrific ego shock," the often "shattering" and "calamitous" effect of divorce on the personality, and point to the frequency of depression and occasionally suicide in the series of divorces that have been investigated.[6b] Some recent studies suggest that the long-term personal disorganization that often followed divorce in the past is now on the decrease, perhaps because divorce has become socially acceptable. But divorce, desertion, and bereavement are still major social forces with health aspects that deserve study and perhaps action programs.

The nature of marriage in our culture warrants study of its implications for public health. When the nuclear family is the only continuous intimate association, the partners expect more of each other in emotional response. This is one example of potential stress in an age of transition, characterized according to Kirkpatrick, "by confusion as to the family tradition." He continues: "Tangled ideologies produce family dramas for which the script and roles are not clearly defined. It is no wonder that family tragedies are enacted and that family members suffer confusion, anxiety, and unhappiness."[23a] Research studies of marital stress are inconclusive, but they indicate that a substantial proportion of husbands and wives are tense and unhappy in their marriage. Weiss and English, whose monumental survey of psychosomatic medicine includes a wide range of family-related illness, noted that "the advice to marry and have children has been a frequent prescription for certain ailments. But, paradoxical though it may seem, many illnesses arise from the marriage situation, and this fact has not been so clearly appreciated."[24]

In two recent population studies in New York City and a rural part of New York State, and in a study of routine admissions to the surgical service of Cincinnati General Hospital, about half of the people examined in each sample showed moderate to severe neurosis.[25] Many outpatient clinics and private physicians report that from half to three-quarters of their patients have symptoms primarily nonorganic in origin or have organic pathology which is aggravated by emotional disorder.[26,27]

These studies are cited not to suggest that any known proportion of this well of human misery originates in the family spring but rather to emphasize the need to explore the major human interrelationships that may bear on public health. One of these, though certainly not the only one, is the family situation. As Kirkpatrick says, "The family is the setting for the most intense emotional experiences which the individual has in the course of a lifetime. Birth, puberty,

marriage, and death are family experiences. The family is the source of serene security, of anguished insecurity, of love and hate, of pride and shame, of ecstasy and anguish."[23b] It is small wonder that the family dramas and crises have a profound effect on the course of health and disease.

ILLNESS AND THE FAMILY UNIT

Fifty years ago the family was the center of medical practice, as suggested in the old, revealing term, family practitioner. Before the era of specialization, the family doctor had a more intimate knowledge of all the family members, of their incomes and ambitions, of the subtle ways in which each reacted to the other. In treating each of his families, he could call on a store of firsthand social, economic, and cultural data, mostly unrecorded on the medical history, and apply this knowledge both to diagnosis and therapy. With the advance of medical science, the family doctor gave way to the specialist who rarely or never saw the patient in a family setting.[2a] Public health was devoted to preventing disease in the community at large, particularly through sanitary control of water, milk, and insects. In recent years, general medical practice has recovered much of its former prestige, and public health has broadened its interest to include the chronic diseases and their long-term effects on individuals.

But, despite progress, the family often remains in a medical vacuum, largely outside the scope of private medicine and nearly neglected by public health. We say "nearly" because one public health practitioner, the public health nurse, has always focused her attention on the family unit. It has been obvious to her, as to the family caseworker in social service agencies, that health or illness or recovery occurs in a family context.

The public health nurse always has taken stock of the unique family situation, of the family's income and education. Her methods have been mostly rule of thumb, based on the impressionistic data of her own experience. Lack of reliable baseline data on the family as a unit in health and disease has not prevented her from doing an effective job, just as the lack of mortality and morbidity data did not prevent effective work by the physician and the health officer 50 years ago.

But if the needed family data were available, the nurse and every other member of the health professions would learn to use the material, and come to rely on it as much as on our highly developed mortality data. None of us works in the dark by choice. Public health workers along with sociologists, demographers, family service workers, family counselors, child psychologists, psychiatric specialists, and business and market analysts would profit from real knowledge of the "universe" of American families: the norms and the ranges, the averages and the anomalies, and the interrelation of disease with varying families and family situations. Eventually public health, drawing on both the science of medicine and the methods of family casework, must develop an epidemiology of family disorders and diseases. Classical epidemiology knows how to deal with the spread of infectious disease in families, but for lack of technique and data it shies away from explaining why several members of a family develop the same gastrointestinal dysfunction or similar neurotic cardiac complaints. The wide spectrum of public health includes not only tuberculosis, poliomyelitis, and other infectious diseases that are routinely studied and attacked in the family context but also many noninfectious ailments such as obesity, alcoholism, asthma, and essential hypertension, all of which are influenced usually by the family situation.

Although many types of illness have little or no connection with the family situation, "illness is one form of family maladjustment."[23a] This observation was made by Henry B. Richardson, a doctor of internal medicine who collaborated with associates in psychiatry, public health nursing, and social service, in a pioneering study of the family as a unit of illness. After several years spent in establishing the direct connection of disease with specific family situations, Richardson wrote:[23b]

"The individual is a part of the family, in illness as well as in health . . . The idea of disease as an entity which is limited to one person . . . fades into the background, and disease becomes an in-

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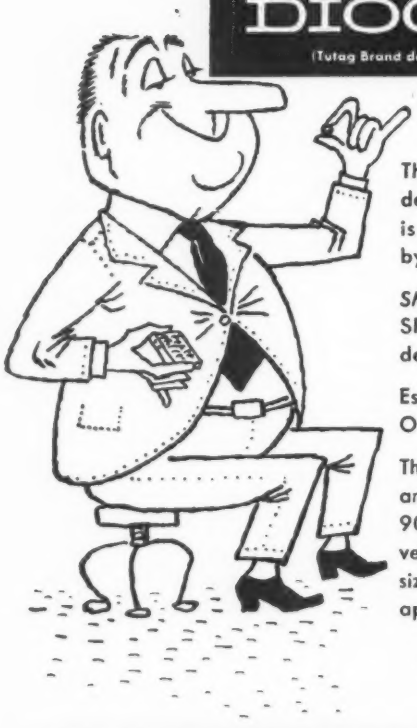

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tegral part of the continuous process of living. The family is the unit of illness, because it is the unit of living."

SOURCES OF FAMILY DATA

How do we begin to build up the family data that public health officials can apply?

An immediate, basic task of public health agencies is to improve the reporting of information contained on marriage and divorce certificates. Marriage and divorce are major punctuation marks in family history, as are birth and death. All these events change the characteristics of the population and of the family units within the population. They interrelate with a variety of other material from the decennial census and the current population surveys of the Bureau of the Census and from the special surveys of Federal and State agencies. This material as a whole makes up the benchmark statistics that describe the American family as an institution and as a process. Consumers of marriage and divorce statistics want facts on the formation of new families, on their growth and composition, and on their dissolution. Marriage and divorce statistics are part of family statistics.

The collection of marriage and divorce statistics is a function of the public health agency in most States and in the Federal Government. Generally, it is among the less emphasized functions.

Although some health departments have worked vigorously to improve marriage and divorce reporting, the system on a nationwide basis is relatively primitive and compares unfavorably with that of most other countries of the western world.

No data at all are collected from substantial number of registration areas in this country; marriage and divorce numbers and rates must therefore be estimated. One of the potential sources of error in these estimates is that in many areas marriage licenses are reported, but marriages are not; the proportion of unused licenses is a fluctuating variable. To take advantage of State differences in legal requirements for marriage and divorce, large numbers of people cross State lines; since reports do not distinguish between temporary and actual residence, the true marriage and divorce rates for any State's residents cannot be determined.

Because certificate information varies from State to State, national cross tabulations cover from 5 to 29 States, depending on the items included in the table. The number of States covered in tables of marriage and divorce characteristics varies not only from table to table but sometimes from year to year, making trend comparisons difficult and area comparisons all but impossible. This appraisal ignores the historical difficulties and the real progress that has been made,[30,31] but discussion of these points is outside the scope of this paper.

In thinking of the potential use of marriage and divorce data as components of family statistics, we should not confine ourselves to the existing fragments, which obviously can have only limited application at present, but instead we should think of what kinds of data might be acquired and applied.

The National Office of Vital Statistics and the American Association of Registration Executives have submitted a proposal to the Association of State and Territorial Health Officers for the establishment of a marriage registration area to be followed by the establishment of a divorce and annulment registration area.

The reasonable criteria for the admission of States to the marriage registration area which were developed by the Public Health Conference on Records and Statistics[32] will permit the inclusion of about 26 States at the outset. The objective is the collection of a uniform body of data, consistent for all States in the initial area and eventually for the entire Nation, that will maximize the value of the statistics obtainable from items reported on marriage and divorce records.

But if all this were achieved, the present certificates alone could provide only a fraction of the family data needed. Although the present certificate data are indispensable as a base, there is much more information to be acquired.

How do we go about exploring the potentials in family statistics? The question has special application to the organizations directly concerned with vital and health records and statistics: the

statistics section of the American Public Health Association, the American Association of Registration Executives, and the Public Health Conference on Records and Statistics. The initiative should come from vital statistics and records people because they are in the best position to know the possibilities and the limitations of vital records as a source of family data.

Each of us concerned with records on individuals should search for additional items for cross tabulation that would enable us to connect individuals as family members and to connect marriages, births, deaths, and divorces of these individuals as related events occurring in families with particular characteristics.

To serve the statistical needs of public health, it is time we broadened our concepts to include statistics on the family as a unit as well as on the individual. None of us at this stage can be expected to come up with immediate, definitive answers on the specific content of vital certificates, on appropriate technical methods and mechanisms, on the total scope of bench-mark family statistics, or on any particular office's proper share of the collection of these data. It will take considerable work and discussion within our organizations to formulate even the first actual steps, but here are some specific lines that seem to be worth exploring.

1. From a family-oriented viewpoint, what can be done to improve the systematic data collection from birth, death, marriage, and divorce records? In re-examining the standard record forms, especially in connection with future revisions, what statistical elements relating the events to the family might be introduced as record items? Would it be valuable to know in what kinds of families deaths from various causes are occurring? Do we want information about successive deaths in families and the composition of the family remnants? What could be done to improve fertility data and child statistics in general through a family-centered approach to the birth certificate? In all of this, the vital statistics system would need the thinking and consultation of health program people at the planning stage.

2. What types of special studies and surveys should be undertaken to enlarge our statistical knowledge of the family in health and disease and to enrich the developing core of vital and health statistics relating to the family? In addition to cross-section studies of family-centered records, we should investigate the feasibility of cohort studies for followup of marriage records and follow-back from divorce records. Moreover, a variety of surveys undertaken for health purposes could be made more valuable if family aspects were considered at the planning stage and incorporated in the study plan. The vital records, perhaps with additional items agreed to by the selected area, might serve as anchor points for such studies.

An urgent research problem is to learn how best to classify families, to determine by limited, short-term studies the kinds of information most essential for characterizing families. Such studies would provide the basis for the collection of family-characterizing data on a larger or a national scale. Without this basic knowledge of the "universe" of American families, the usual study of disease behavior in a selected sample of families cannot be generalized to any known population since there is no way to tell what part of the population the sample represents.

3. In addition to the decennial census, which has always been a rich source of data to students of the family, the current population surveys of the Bureau of the Census are open to special questions on marriage, divorce, and the family structure. They have been used several times for this purpose in the recent past. Questions relating health to the family situation in selected samples could be answered quickly and economically by this means.

4. Hospital and clinic records not only should include questions on the family medical history, as many do at present, but the records for all members of the family might be more accessible as a unit. Exploration of the objectives and technical problems might well be undertaken jointly by vital statistics people and medical record librarians.

5. Similar potentials exist in public health nursing records, which routinely contain data on the family, and which

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for special study purposes might profitably be collated with birth, death, and marriage records.

From a public health standpoint, the family is not just a social unit, it is an epidemiological unit. Study of the family requires an interdisciplinary approach of classical epidemiology and the social sciences. The statistical technique, for want of a short and simple term, might be called "social biostatistics," to which family-oriented vital statistics would contribute a share of the basic data.

A final quotation from Richardson is appropriate[32]:

". . . we may now consider how to develop a science of the family. The language in which this science will be expressed will not have the precision of mathematical analysis, unless on a statistical basis. Much of the material, as in many of the natural sciences and in psychology, will remain on a descriptive level. Nevertheless we may hope to develop an understanding of the family unit, which will help us to predict the future course of events."

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The birth rate: recent trends and outlook*

The past decade has seen an average of 3.8 million births annually in the United States, or 1½ times the number in 1940. In 1954, for the first time in our history, births passed the 4 million mark—the estimate is 4,078,000—and climbed further to just short of 4.1 million last year. Moreover, the outlook is that the number will be even greater this year and will remain around 4 million in the years immediately ahead.

The rise in the birth rate has been most pronounced among younger women. At ages 20-24 years, for example, the birth rate reached successively higher levels during each of the past five years. By 1955, it was one seventh above the immediate postwar peak recorded in 1947, and the highest in more than a generation. Even women in their 30's have made a substantial contribution to the recent upswing in births. In fact, only among women past the prime of reproductive life—those at ages 40 and over—has there been little change in the birth rate during the past decade or two.

In its early phases, the upsurge in births reflected largely the record number of new families formed. In recent years, however, the baby boom has been sustained by a high level of fertility among married couples, as evidenced by the continuing rise in the birth rate at virtually all childbearing ages.

A relatively large proportion of young couples each year become parents. Thus, in 1954 and 1955, the proportion was close to one half for families in which the wife was in her teens and one third where she was 20-24 years of age. At least one out of every five wives at ages 25-29 had a baby during the year.

The fertility patterns by age are obviously related to a growing popularity of moderate size families. Most striking is the fact that an increasing number of couples are now having a third or a fourth child. The annual rate for third births has climbed from 1.8 per 100 married women under age 45 in 1940-41 to 3.1 per 100 in 1954-55. The rise has been equally marked for fourth births, the rate increasing by 70 percent during this period.

Fifth and subsequent births have also increased somewhat in recent years, and are likely to continue upward for the balance of the decade. However, there is little likelihood that the rates for these birth orders will return to the high levels of the 1920's. The rate for fifth children, for example, has increased from its low point of 0.6 per 100 in 1942 to 1.0 per 100 in 1955, which is still 50 percent below the rate in 1920. For sixth and later children, the disparity between present rates and those of a generation ago is even greater.

Also noteworthy is the pattern for second births, which had increased almost without interruption from a low point in 1933 to a peak in 1952. Although the rate has since fallen off somewhat, it is still at an unusually high level—one third above the rate in 1940 and about one eighth higher than in 1920. Moreover, in 1954-55 the number of families which had a second child exceeded those having a first child—a situation which is probably without precedent in our history.

The rate for first births has been stable in the past four years, remaining at a level about 10 percent below that of 1940-41. Since first births generally parallel the trend of marriages, their number is not expected to change materially in the near future. In the late 1960's, however, when marriages are likely to rise sharply again, first births may equal and even exceed the record numbers which occurred in the years immediately after World War II.

The shift toward larger families has come at a time when men and women are marrying earlier in life. As a result, a large proportion of the births are to relatively young parents. In more than two fifths of the families which had a child during 1954-55, the wife was under 25 years of age, and in seven tenths, she was under age 30.

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, October 1956.

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The general practitioner and public health*

Herman E. Hilleboe, M.D.
Commissioner, N. Y. State Department of Health

The general practitioner plays a major role in protecting and improving the public health by his application of advanced medical science. He has contributed greatly to the marked reduction of maternal and infant mortality while his participation in vaccination and immunization against acute communicable diseases has given longer life expectancy to our younger generation. These things did not just happen but resulted from the organized community effort of private medical practitioners and public health physicians.

The general practitioner is continually on the alert for opportunities to prevent disease and disability among his individual patients; the public health physician's primary concern is with the group. The public health physician, accordingly, utilizes his staff and facilities to supplement and enhance the efforts of the general practitioner but not to replace his activities. From these combined efforts, the maximum number of families enjoy the lasting benefits of preventive medicine applied to the individual and public health measures applied in the community.

Therefore, the public health physician and the family doctor have learned by working together on common problems that preventive medicine and curative medicine are inseparable in the protection of the public health. The practice of medicine is changing rapidly because of the giant strides made in the discovery and use of new drugs, chemicals and antibiotics; new diagnostic skills and therapeutic techniques are forging ahead at the same pace. It is fortunate that the physician can use new weapons in his battle against disease and disability, because now he is challenged anew by the aging of the population and the concomitant increase in chronic illnesses among these older people.

For example, in New York State, the population as a whole is expected to increase from 15 million in 1950 to 19 million in 1975; during this same interval the proportion of persons 65 and over in the population will rise from 8 to nearly 13 per cent. Clearly the public health problems of the future will be concentrated among older persons with multiple forms of chronic disease and disability. We can not cure many of the chronic ailments of older persons but we can treat and rehabilitate many of these individuals so that they can avoid the disablement that makes them a burden to themselves, their relatives and friends.

Our main objective in chronic illness control is to keep afflicted persons out of bed and well enough to conduct their ordinary affairs while enjoying life as much as possible. The attainment of this objective requires a realignment of preventive medicine and public health programs to meet these changing needs. More often than not we will be diagnosing and treating a social problem with medical aspects; chronic tuberculosis is a well-known example. Chronic arthritis and hemiplegia of the aged are two other common examples.

Preventive programs are no longer limited to environmental sanitation and acute communicable diseases and maternal and child health. Health education, public health nursing and the gathering of vital statistics are valuable activities that we use to achieve our objectives, but they are not goals in themselves; public health is vastly more than these activities, important as they are. Public health includes the broad spectrum of prevention of the occurrence and progression of diseases, disabilities and defects. Every phase of medical science contributes to modern public health service.

The greatest potential source of preventive medical services is the general practitioner. In spite of the heavy demands of his never-ending labors, he finds time to serve on medical committees of voluntary health agencies, to donate his services for worthy charities, to act as a part-time health officer, and to participate

*Editorial reprinted from *Health News*, New York State Department of Health, June 1956.

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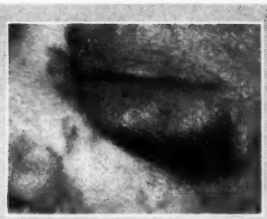
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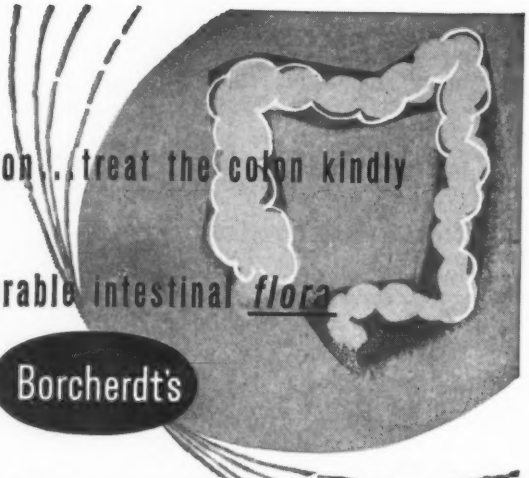

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Books received

Books received for review during the period from November 5 to December 5, 1956, are listed below. Reviews will be published as space permits.

ATLAS OF TUMORS OF THE NERVOUS SYSTEM. By H. M. Zimmerman, M.D., Chief, Laboratory Division, Montefiore Hospital, and Professor of Pathology, College of Physicians and Surgeons, Columbia University, New York City; and Martin G. Netsky, M.D., Associate Neuropathologist and Associate Attending Physician in Neuropsychiatry, Montefiore Hospital, New York City; Presently Professor of Neuropathology and Associate Professor of Neurology, The Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina; and Leo M. Davidoff, M.D., Attending Neurological Surgeon, Montefiore Hospital, and Professor and Chairman, Department of Surgery, Albert Einstein College of Medicine, New York City. Cloth. Pp. 191, with illustrations. Price $25.00. Lea & Febiger, 600 S. Washington Square, Philadelphia 6, 1956.

OPERATIVE SURGERY. Volume Two: Abdomen. Under the General Editorship of Charles Rob, M.C., M.CHIR., F.R.C.S., Professor of Surgery, St. Mary's Hospital, London, and Rodney Smith, M.S., F.R.C.S., Surgeon, St. George's Hospital, London. Cloth. Pp. 557, with illustrations. Price $19.50. F. A. Davis Company, Medical Publishers, 1914-16 Cherry St., Philadelphia 3, 1956.

LOW-FAT COOKERY. By Evelyn S. Stead and Gloria K. Warren, Dietitian, with an introduction by Eugene A. Stead, Jr., M.D., and James V. Warren, M.D. Cloth. Pp. 184, with illustrations. Price $3.95. McGraw-Hill Book Company, 330 W. 42nd St., New York 36, 1956.

ANESTHESIA FOR SURGERY OF THE HEART. By Kenneth K. Keown, M.D., F.A.C.A., Associate Professor of Anesthesiology, Hahnemann Medical College and Hospital, Philadelphia, Pennsylvania; Senior Anesthesiologist, Bailey Thoracic Clinic, Philadelphia, Pennsylvania; Member of the Board of Governors of the American College of Anesthesiologists; Diplomate, American Board of Anesthesiologists, Inc.; Lecturer on Anesthesia for Intracardiac Surgery for Refresher Courses of the American Society of Anesthesiologists, Inc. Cloth. Pp. 109, with illustrations. Price $3.75. Charles C Thomas, Publisher, 301-327 E. Lawrence Avenue, Springfield, Ill., 1956.

Ciba Foundation Symposium on PAPER ELECTROPHORESIS. Editors for the Ciba Foundation G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Elaine C. P. Millar,

A.H-W.C., A.R.I.C. Cloth. Pp. 224, with illustrations. Price $6.75. Little, Brown and Company, 34 Beacon St., Boston 6, 1956.

Ciba Foundation Symposium on BONE STRUCTURE AND METABOLISM. Editors for the Ciba Foundation G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Cecilia M. O'Connor, B.Sc. Cloth. Pp. 299, with illustrations. Price $8.00. Little, Brown and Company, 34 Beacon St., Boston 6, 1956.

WIRE BRUSH SURGERY. In the Treatment of Certain Cosmetic Defects and Diseases of the Skin. By James W. Burks, Jr., M.S., M.D., Associate Professor of Clinical Medicine (Dermatology) Tulane University of Louisiana, School of Medicine; Senior Associate, Department of Dermatology, Touro Infirmary; Visiting Physician, Division of Dermatology and Syphilology, Charity Hospital of Louisiana at New Orleans; Consultant to Keesler Air Base Hospital, Mississippi; Member of American Academy of Dermatology and Syphilology; Member of Society for Investigative Dermatology; Diplomate of American Board of Dermatology and Syphilology. Cloth. Pp. 154, with illustrations. Price $6.75. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1956.

PRINCIPLES OF CHEST X-RAY DIAGNOSIS. By George Simon, M.D., F.F.R., Assistant Director, X-ray Department, Brompton Hospital, London; Radiologist, St. Bartholomew's Hospital, London; Demonstrator, Radiological Anatomy, St. Bartholomew's Hospital, London; Curator of the Radiological Museum and Teacher of Radiology, The Institute of Diseases of the Chest, University of London. Cloth. Pp. 193, with illustrations. Price $8.50. F. A. Davis Company, Medical Publishers, 1914-16 Cherry St., Philadelphia 3, 1956.

CLINICAL PATHOLOGY — Application and Interpretation. By Benjamin B. Wells, M.D., Ph.D., Director of Clinical Investigation, The Lynn Clinic, Detroit; Former Professor of Medicine and Chairman of the Department of Medicine, Creighton University School of Medicine, Omaha. Ed. 2. Cloth. Pp. 448, with illustrations. Price $8.50. W. B. Saunders Company, W. Washington Square, Philadelphia 5, 1956.

THE PERSON BEHIND THE DISEASE. By Julius Bauer, M.D., F.A.C.P., Clinical Professor of Medicine, College of Medical Evangelists, Los Angeles; Senior Attending Physician, Los Angeles County General Hospital; Consultant in Medicine, Long Beach Veterans Administration Hospital. Cloth. Pp. 136. Price $3.50. Grune & Stratton, 381 Fourth Avenue, New York 16, 1956.

THE MERCK MANUAL OF DIAGNOSIS AND THERAPY. Edited by Charles E. Lyght, M.D. Cloth. Pp. 1870. Price $6.75 for Regular Edition. $9.00 for Deluxe Edition. Ed. 9. Merck & Company, Rahway, N. J., 1956.

OPERATIVE SURGERY. Under the General Editorship of Charles Rob, M.C., M.CHIR., F.R.C.S., Professor of Surgery, St. Mary's Hospital, London; and Rodney Smith, M.S., F.R.C.S., Surgeon, St. George's Hospital, London. Volume I. Cloth. Pp. 347, with illustrations. Price $19.50. F. A. Davis Company, Medical Publishers, 1914-16 Cherry St., Philadelphia 3, 1956.

TRAINING OF THE LOWER EXTREMITY AMPUTEE. By Donald Kerr, B.B.A., Director, National Institute for Amputee Rehabilitation, Lodi, New Jersey; and Signe Brunnstrom, M.A., Consultant in Amputee Training, Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, New York, New York. Introduction by T. Campbell Thompson, M.D. Cloth. Pp. 272, with illustrations. Price $6.50. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1956.

THE HAPPY LIFE OF A DOCTOR. By Roger I. Lee, M.D. Cloth. Pp. 278. Price $4.00. Little, Brown and Company, 34 Beacon St., Boston 6, 1956.

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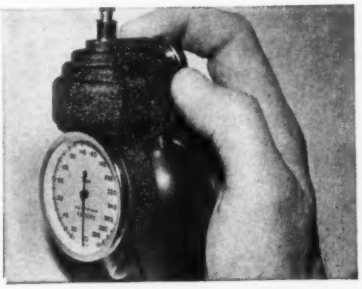
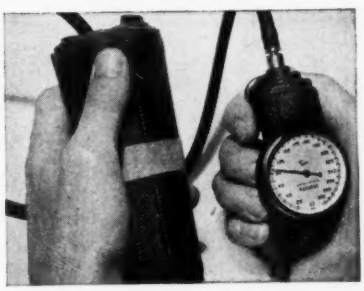


1. Hold this new instrument. We've built the inflating bulb and air release valve right into the back of the gage—the whole instrument fits comfortably into the palm of either hand.

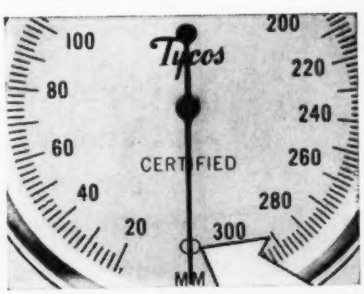
2. Connect the gage to the hook cuff with a gentle twist—the Luer lock makes it airtight. You'll like being able to hook the cuff on the arm before connecting the gage.

3. Inflate the new TYCOS Hand Model Aneroid with edge of gage resting against base of your thumb. Thumb and index finger naturally grasp big thumb screw release valve.



4. Try it out with the cuff rolled up —this simulates actual use. See how you can shield the dial from peering patients—and how nicely it balances in your hand.

5. Release air pressure 2 mms. at a time. or deflate completely with ½ turn of the thumb screw. Remove thumb screw to see how floating stainless steel ball replaces old needle valve.



6. Check this safeguard — the new TYCOS Hand Model Aneroid is always accurate as long as pointer returns within oval zero. Accurate in any position. Hold it where easiest to read.

Protected by the famous TYCOS 10-year triple warranty. Complete with genuine leather zipper case and hook cuff. Weighs 18 ounces. **$47.50.**

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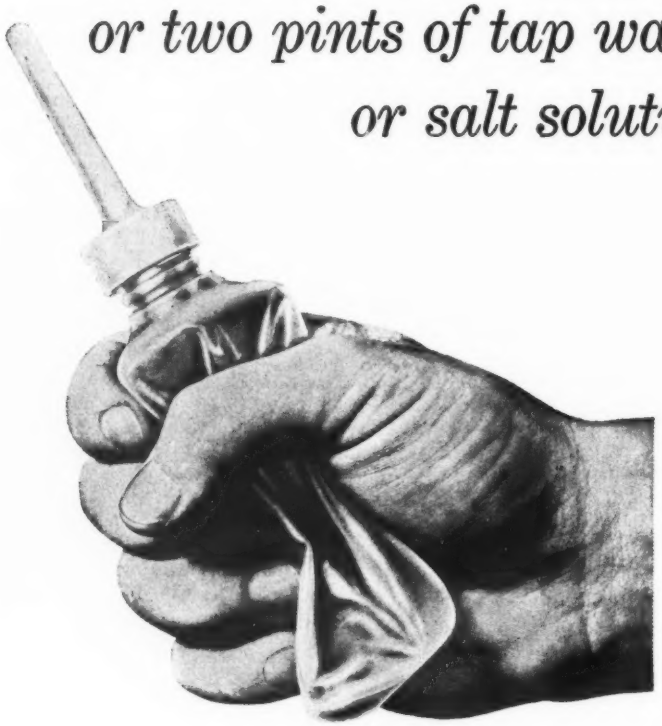

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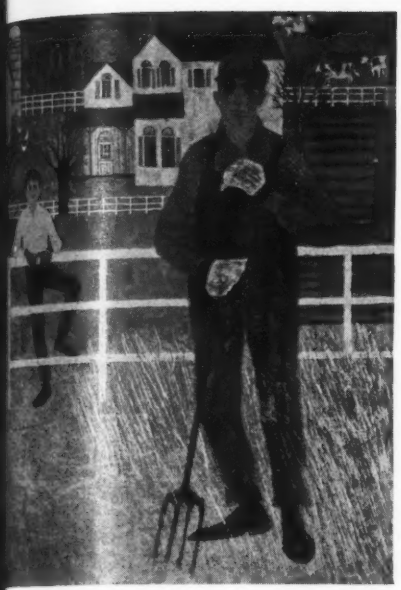

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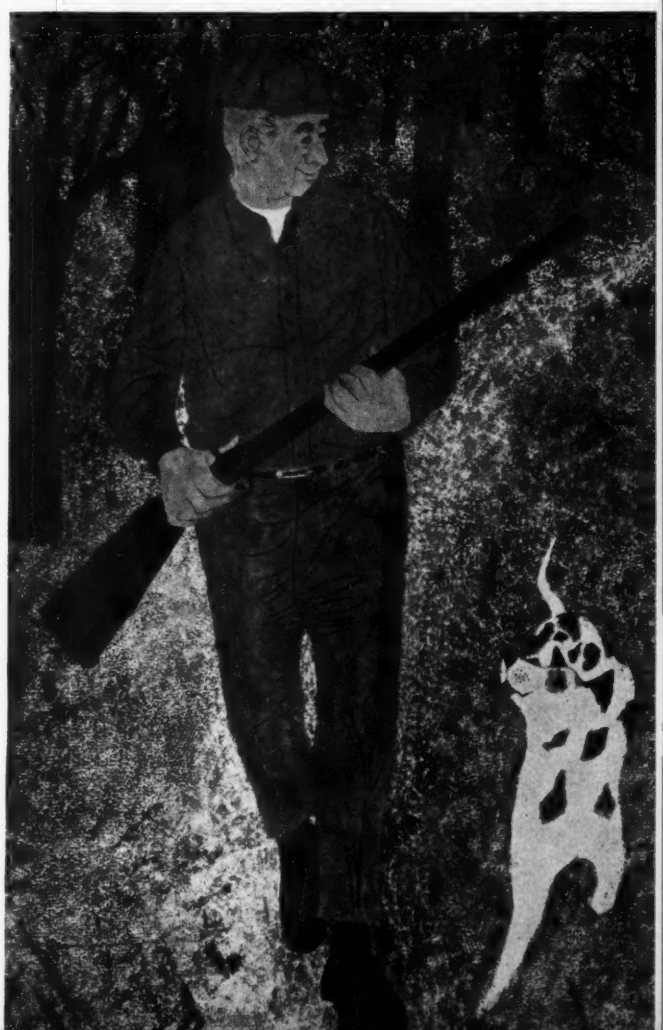

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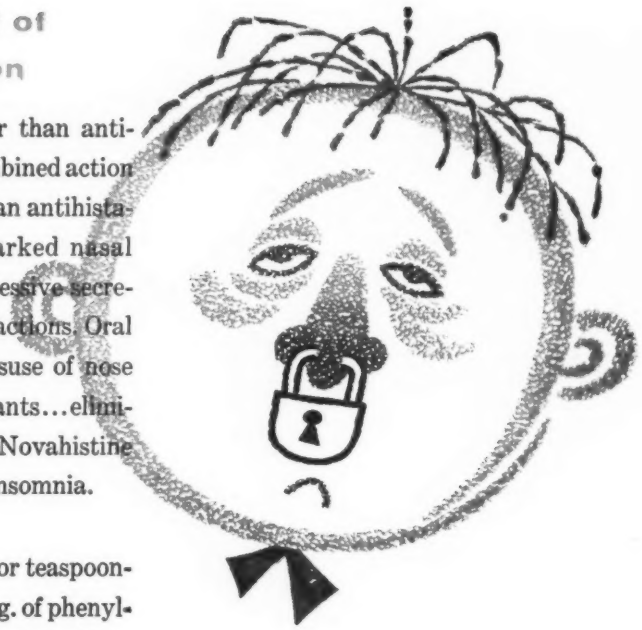

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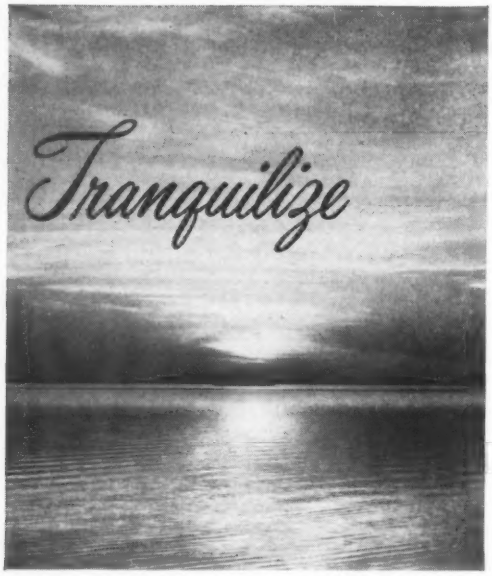

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McMillen, John W., Jr., from 416 N. First St., to 410 N. First St., Stockton, Kans.
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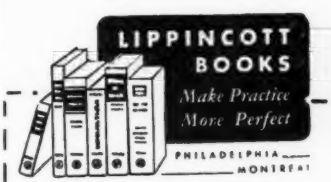

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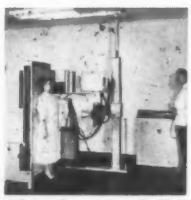

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SIGNIFICANT: Wilkins, R. W.: Mississippi Doctor 30:359, 1953. Wilkins, R.W., and Judson, W. E.: New England Jrl. of Medicine 248:48, 1953. Duncan, Garfield G.: Philadelphia Medicine 51:24, 1956.

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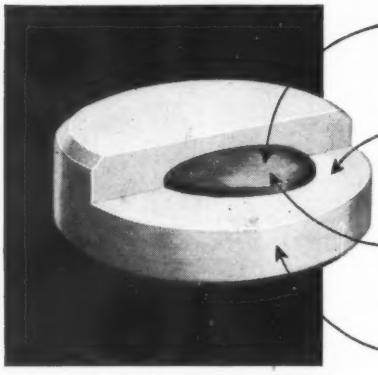

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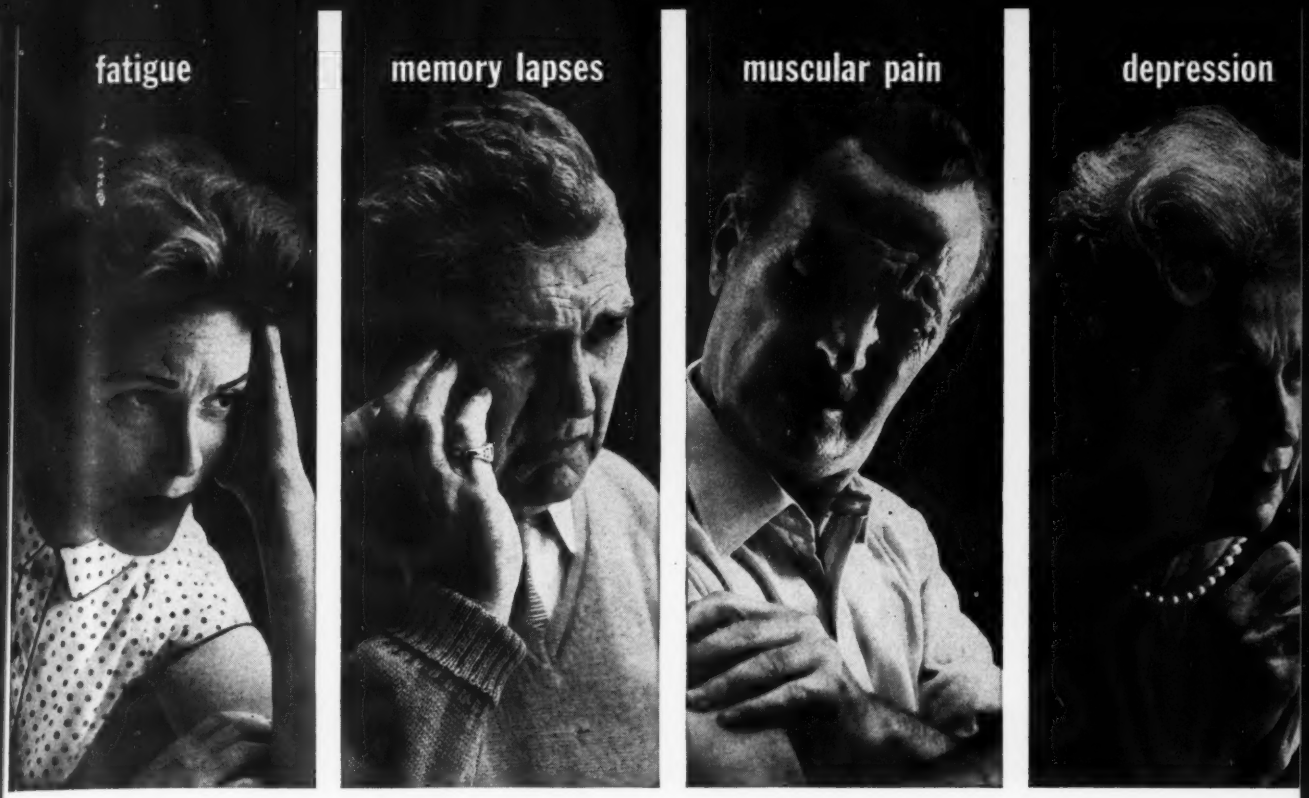

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References: 1. McGavack, T. H.: Geriatrics *5*:151 (May-June) 1950. **2.** Masters, W. H.: Obst. & Gynec. *8*:61 (July) 1956. **3.** Kimble, S. T., and Stieglitz, E. J.: Geriatrics *7*:20 (Jan.-Feb.) 1952. **4.** Kountz, W. B., and Chieffi, M.: Geriatrics *2*:344 (Nov.-Dec.) 1947. **5.** Birnberg, C. H., and Kurzrok, R.: J. Am. Geriatrics Soc. *3*:656 (Sept.) 1955.

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(1) Abrahamsen, E. H., and Baird, H. W., III: J.A.M.A. *160*:749 (Mar. 3) 1956.
(2) Amols, W.: J.A.M.A. *160*:742 (Mar. 3) 1956.
(3) Rodriguez-Gomez, M.; Valdes-Rodriguez, A., and Drew, A. L.: J.A.M.A. *160*:752 (Mar. 3) 1956.
(4) Smith, R. T.; Kron, K. M.; Peak, W. P., and Hermann, I. F.: J.A.M.A. *160*:745 (Mar. 3) 1956.

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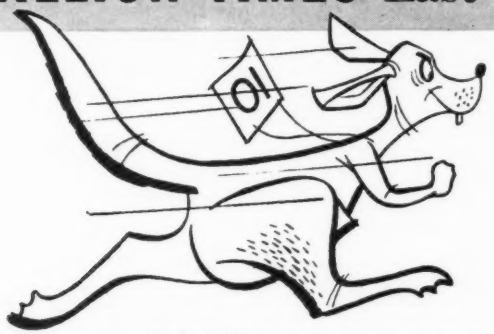

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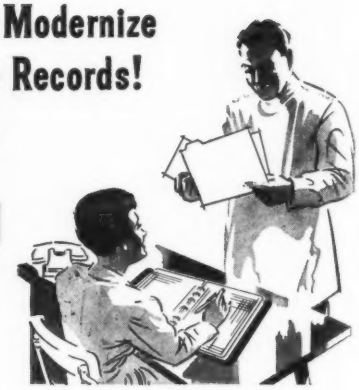

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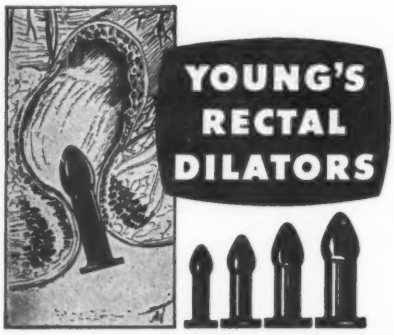

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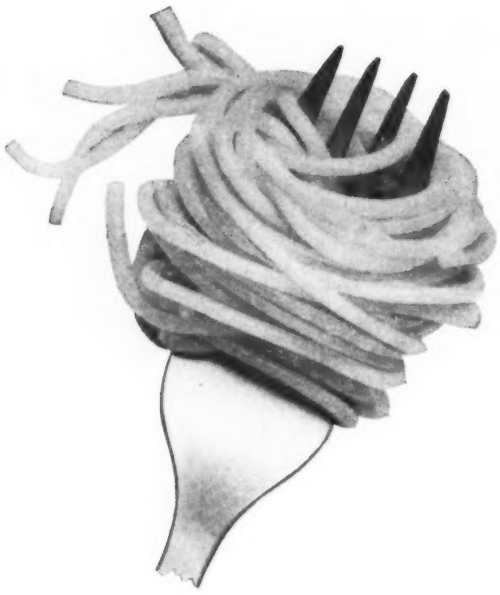

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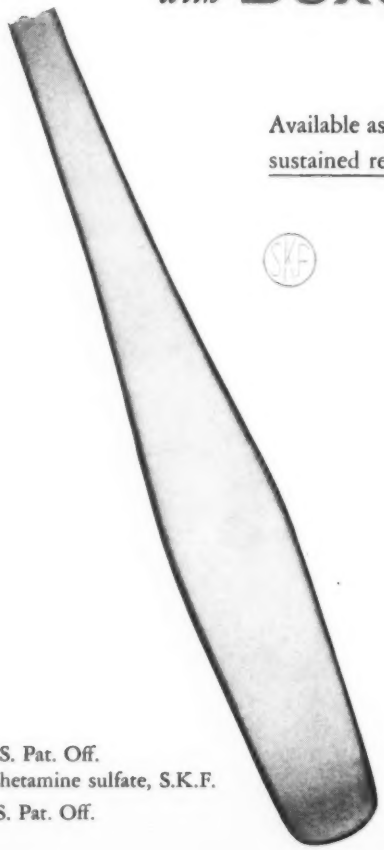

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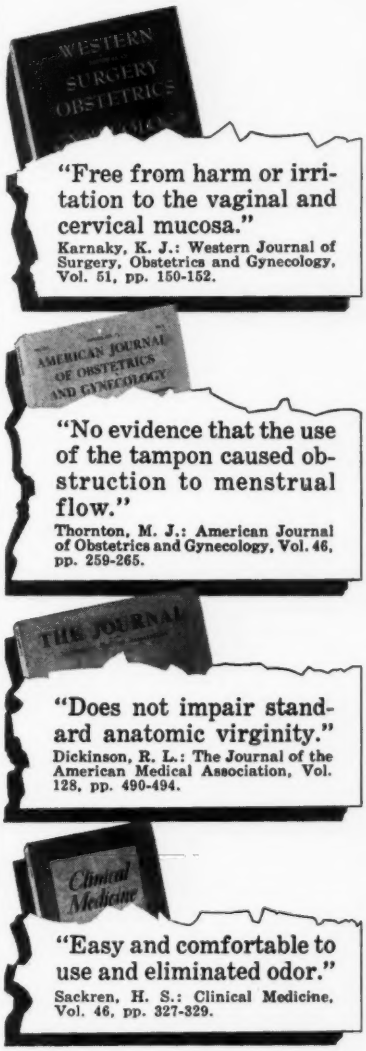
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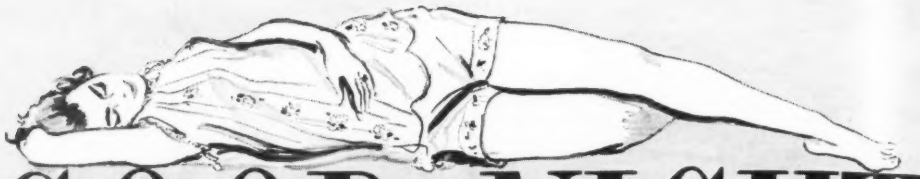

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